TECHNOLOGY DEPT.

AUGUST, 1950

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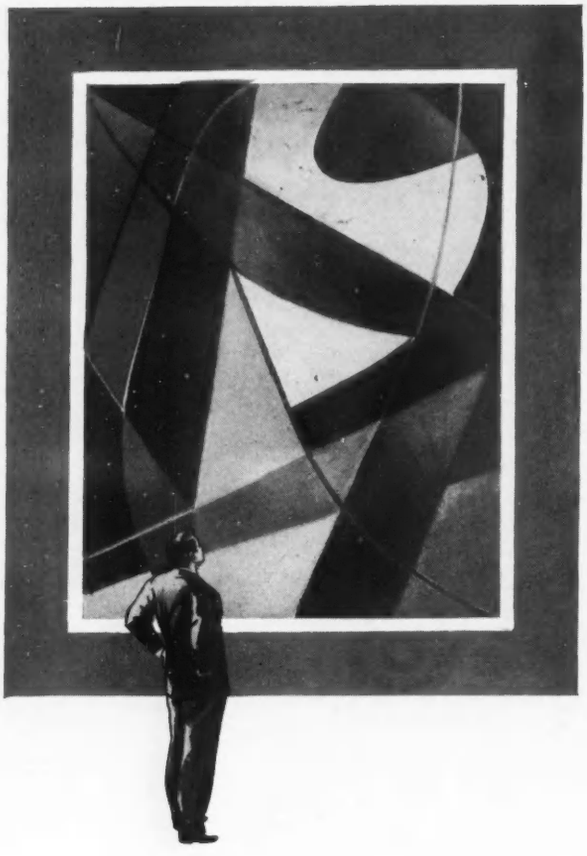
# Telephone Engineer and Management

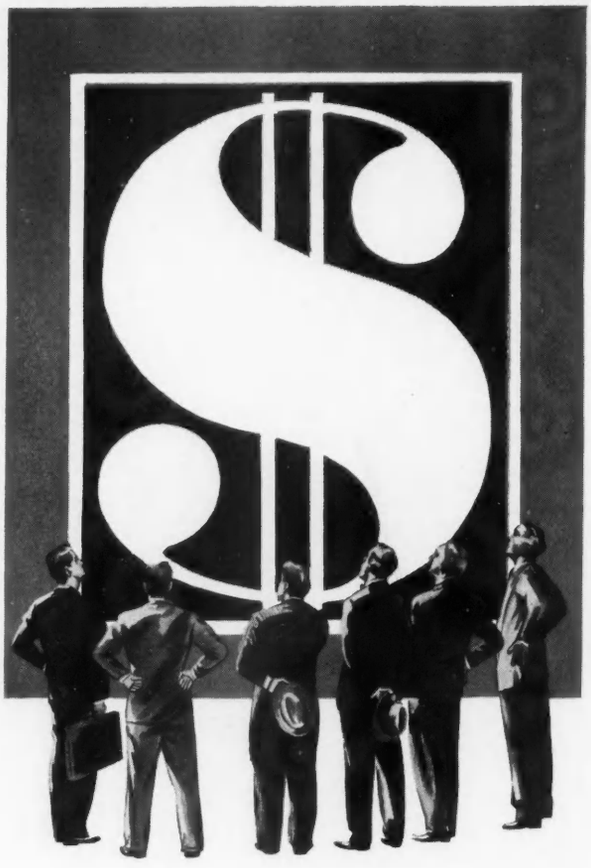
THE NATIONAL TELEPHONE MAGAZINE

*Features In This Issue—*

**"ARE YOU SPRAYING YOUR RIGHT-OF-WAY?"**

*By Dr. Arne E. Carlson*





# ABSTRACT . . OR OBJECTIVE?

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Ask our representative to show you the records of increased revenue and consistently high profits from directory operations enjoyed by telephone companies which employ our Complete Directory Service Plan.

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**IN THE SWAMPS,** forces of decay are almost at their maximum of destructive power. High moisture content and infection from other decaying wood and debris are ever-present menaces. Poles properly treated with BARRETT Coal-Tar Creosote have survived under swamp conditions for years.

**IN FRESH WATER,** many preservatives leach out of wood. BARRETT Coal-Tar Creosote resists this leaching action. Being only negligibly soluble in water, it is the preferred preservative for use on submerged wood structures, or those exposed to the powerful action of rapidly flowing water.

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**Only coal-tar creosote wood preservative has been used long enough and widely enough to have proved its effectiveness under all conditions.**

Use Barrett* → **COAL TAR CREOSOTE**

*Reg. U. S. Pat. Off.

## Across The Editor's Desk

Congratulations to C. D. (Chuck) EHINGER, Decatur, Ind. on his elevation to the presidency of the Citizens Telephone Company of that city. Captain Ehinger served his country during World War II and since his release has been busy on the million-dollar dial system modernization of the company. "Chuck" has been manager since 1938 and the company has grown from 3800 telephones in service to 5200. MR. LEO YAGER, former president was made chairman of the board.

• • •

P. M. FERGUSON, SR., Mankato, Minn., has been the recipient of many honors since his Golden Anniversary in the telephone business was celebrated on June 15. He was recently the honor guest of the Arts & Sciences Club, Ltd. at a called meeting in Wisconsin and was named Chairman of that body. The meeting included all officers of the Club in the States at the time of the meeting.

• • •

So many information requests have been received on the spraying of right of way with chemicals that we asked the Du Pont company to give us an account of its experiences with this comparatively new tool. On page 34 of this issue you will find an interesting feature titled "Are You Spraying Your Right-of-way" by DR. ARNE E. CARLSON of the Du Pont company. We find a rapid swing to this method of brush control by many of the telephone companies throughout the country.

• • •

ARTHUR L. ALBERT, B. S., M. S., and E. E., Professor of Communication Engineering at Oregon State College, has completed his Third Edition of ELECTRICAL COMMUNICATION which is now available at $6.50. His new edition considers the specialized fields of the subject as they are related to one another in modern communications system. The book provides a basic training upon which a successful career in communication engineering can be built.

*The National Telephone Magazine*

# TELEPHONE ENGINEER and MANAGEMENT

**AUGUST, 1950** **VOL. 54, NUMBER 8**

*Editor*, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
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*FRONT COVER*

Thanks to *Howard L. Housley*, Dallas, Texas for our August cover photograph, showing members of Oklahoma Telephone Association during district meeting at Kiowa, Okla.

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**For forty years, yes since 1910, L. M. Berry and Company has been selling telephone directory advertising. Year after year we have succeeded in helping hundreds of telephone companies with their directory problems—sale of advertising space, compilation procedures, printing and production advice.**

**Our customers expect—and receive—modern, reliable and accurate directories, tailored to the individual needs of each Company. These directories contain highly desirable advertising revenue and increase the customer good will of each telephone company.**

**Today, in our 41st year, we are successfully handling directory advertising sales for . .**

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IN **25** STATES

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This is an enlarged edition of a classic in the field. Designed as a survey of the entire field of transients in lumped power circuits, it discusses their physics rather than their mathematics. Material on electric machinery, apparatus and instruments, transmission and distribution and transients proper, is arranged so that it progresses from the more simple to the more difficult applications. Many numerical examples, taken from actual practice, are included, with numerous oscillograms and measurements further bridging the gap between the theory and the practice of the transients.

**Check these topics**
- resonance phenomena
- transient state of oscillatory circuits
- switching of transformers
- acceleration of machinery
- heating of cooled conductors
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The book covers simple electric circuits, magnetically linked circuits, inertia effects of rotating masses, the influence of the earth and the performance of circuits on non-linear characteristics. It details variable resistance, interruption by electric arcs, magnetic saturation in circuits at rest, and saturated rotating machinery.

Order from

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by CHARLES G. FRASER

Head, Dept. of Physics, Harbord Collegiate Institute, Toronto

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Employing a historical and biographic approach to the study of physics, this new, big book, HALF HOURS WITH GREAT SCIENTISTS, provides a treasure-house of fascinating and useful information.

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Order from

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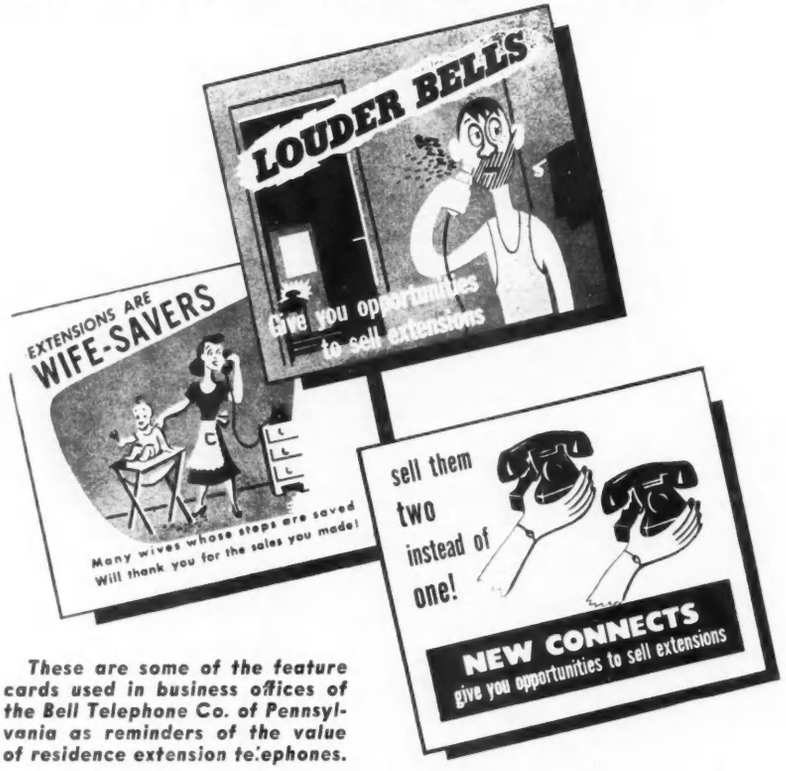
# Revenue Boosters

*By Richard Allen*

**LEADS TO RESULTS . . . Imagination is loose among the operators in Akron (Ohio) Information. They've turned it toward making a note of every instance they run across where they imagine that a customer could benefit from a more complete telephone service—And it's amazing—"how good they are at picking up the places where such a little thing as an *additional listing* would make a more satisfied subscriber. Nearly every day they turn in 40 or 50 of the information sales leads cards. Commercial takes it from there.**

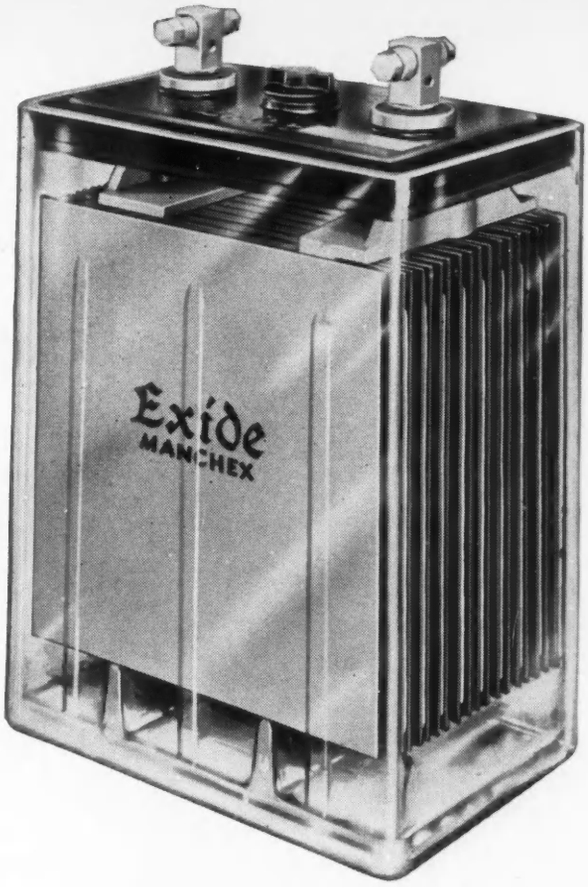
**As an example of what can be done, a recent tabulation showed that the commercial department has turned the leads into sales that amount to an annual revenue of $3559.80.**




***These are some of the feature cards used in business offices of the Bell Telephone Co. of Pennsylvania as reminders of the value of residence extension telephones.***

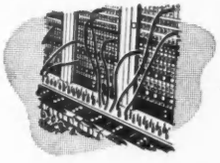
**FINDING THE "WHY" OF IT . . . One of our friends who is a service representative, has a way about her. People just naturally like to talk to her and she usually gets to the bottom of things. Just like the other day, a woman called and asked what the charges are for an extension telephone and then decided she didn't want one. But the representative didn't stop there. She went on chatting and soon the woman was talking about her gardening. "I spend a lot of time in the garden. But when I'm there *I can't hear the telephone* and I miss a lot of calls. I could put an extension in the garage but there would be a lot of bother and charge of taking it out in the winter and putting it in, in the spring."**

**"What about jack and plug?" asked the service representative. She explained its advantages and suggested, "You could put a jack in the garage and one in the house. Then you could put your telephone in either place." The woman placed an order . . . and company revenue got a boost.**




# Exide-Manchex Batteries

## ASSURE DEPENDABLE POWER FOR OPERATION OF TELEPHONE EQUIPMENT



Exide-Manchex Batteries are DIFFERENT in design, construction, performance . . . differences you can count on for dependable battery service day after day . . . and at a saving.

One outstanding feature is the *famous Exide manchester positive plate*, which is used *exclusively* in the Exide-Manchex Battery. Other important features include:

. . . slotted plastic separators, impervious to chemical and electrical reaction.

. . . plastic spacers that maintain perfect plate alignment.

. . . the latest development in molded glass jars.

. . . heavy terminal posts with copper inserts for extra conductivity.

• • •

Combined, these Exide-Manchex features assure you dependable power for positive operation of telephone equipment.

Use Exide-Manchex Batteries for all stationary battery requirements — common battery, emergency reserve, signaling, PBX and other applications. Wherever used, you can expect trustworthy performance, long battery life and low cost maintenance.

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"Exide" and "Manchex" *Reg. Trade-marks U. S. Pat. Off.*

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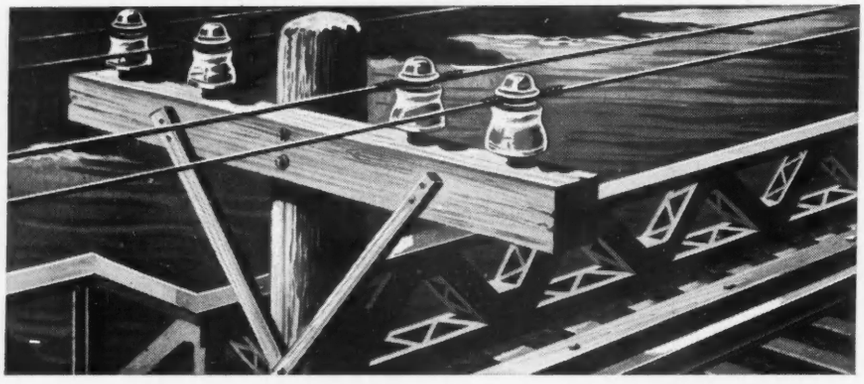


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Armstrong's No. 1

**ARMSTRONG'S GLASS INSULATORS**

*for communications . . . for power*

**"After exhaustive hearings, the Public Service Commission allowed the Bell Telephone Company a raise in rates. If our memory serves us right the company recently allowed an increase in wages and increased pension benefits. The money to pay this increased cost of doing business must come from somewhere. The only place is from the consumer."— *Onaway (Mich.) News.***

• • •

**"Today it seems more important to a lot of people to get free handouts, or Federal aid or subsidies or one of the many something-for-nothings benevolently provided in Washington even though they bring with them no little dictation and abuse. Of course, it's easier to bow the knee as long as the hand is filled. But that attitude would never have won our independence back in 1776. And it might be said that it will not maintain our internal independence and freedom if we continue to look more to Government and less to ourselves for the solution to our problems."— *Davis (Calif.) Enterprise.***

• • •

**"The government has buried its gold in Kentucky and its silver in West Point, New York. The taxpayer will be buried, as has been the custom for years, in the little hometown cemetery." *—Stromsburg (Nebr.) Headlight.***

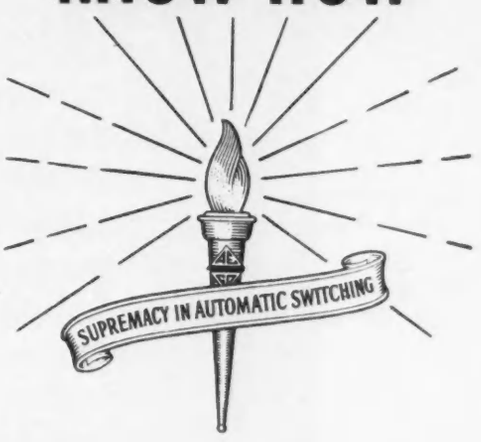
This is ATE

...Another Important Center OF STROWGER AUTOMATIC "KNOW-HOW"

From this modern plant of Automatique Electrique S.A., Antwerp, Belgium, comes Strowger Automatic equipment in ever-increasing volume to serve telephone companies and administrations over a wide area. It is another important unit in the International Automatic Electric Group, whose customers benefit from techniques developed by the originators of automatic telephony.

The production, engineering and service facilities of Automatique Electrique (as of its affiliated companies in the International AUTOMATIC ELECTRIC Group) can help you as they have helped telephone companies and operating administrations in all parts of the world.

To benefit from these services, wherever you are, whatever your requirements may be, call upon the nearest representative of

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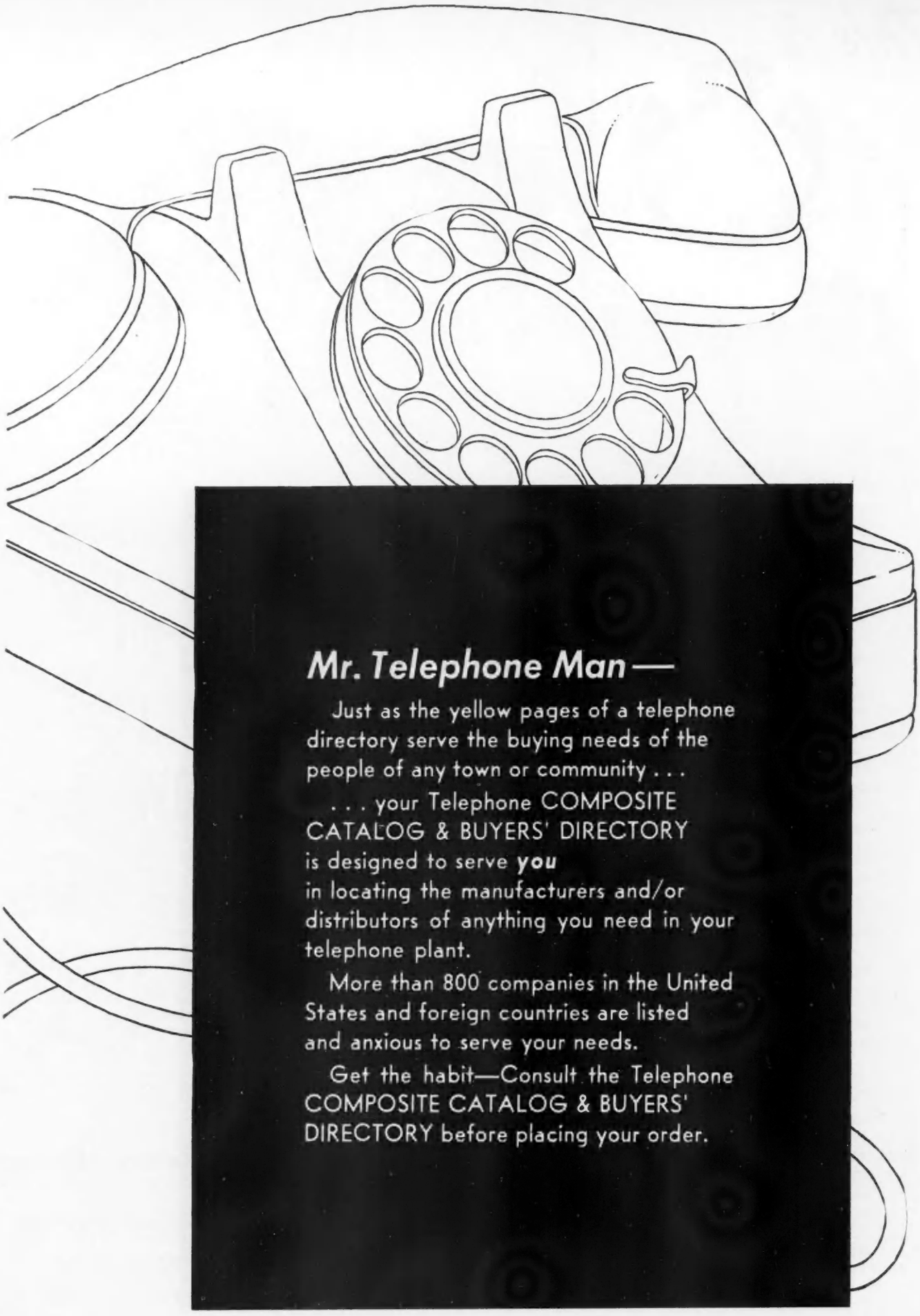


## *Mr. Telephone Man—*

Just as the yellow pages of a telephone directory serve the buying needs of the people of any town or community . . .

. . . your Telephone COMPOSITE CATALOG & BUYERS' DIRECTORY is designed to serve ***you*** in locating the manufacturers and/or distributors of anything you need in your telephone plant.

More than 800 companies in the United States and foreign countries are listed and anxious to serve your needs.

Get the habit—Consult the Telephone COMPOSITE CATALOG & BUYERS' DIRECTORY before placing your order.

# NEWSLETTER
TELEPHONE ENGINEER

*Fortnightly* TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

**NEWSLETTERS *on Alternate Weeks***


August 15, 1950

Dear Sir:

In single telephone loan authorization by Rural Electrification Administration July 31-Aug. 5, REA granted $124,000 loan to Yorkville (Tenn.) Mutual Telephone Co., which now operates 75 miles of lines & serves about 400 subscribers.

First rural telephone allocation to North Carolina organization was approved by Deputy Administrator George Haggard of Rural Electrification Administration July 28. Loan, one of largest telephone grants made to date by REA ($518,000) went to Yadkin Valley Telephone Membership Corp., Yadkinville, N. C. New organization is set up to provide service in Yadkin, Davie & part of Iredell Counties. REA said area is now virtually without telephone service. Co-op will serve 2,456 subscribers initially on 528 miles of line; is to be equipped for ultimate potential of 2,800 members.

* * *

Independent telephone companies of United States, at close of 1949, served 7,321,000 telephones, or more than in all of Great Britain & France combined, revised edition of "The Independent Telephone Industry in the United States," published by the U. S. Independent Telephone Association, brings out. Booklet reports Independent telephone companies operate about 11,000 exchanges. About 44% of Independent telephones were dial operated at close of 1949.

* * *

With threat of possible sabotage of essential communications facilities beginning to hang over nation, two Bell System companies announced new security program. New Jersey Bell Tel. Co. announced appointment of Paul T. Kraus as assistant general plant manager with duties of coordinating activities relating to civil defense. Among safeguards of World War II company is expected to reinstate are round-the-clock special police protection of major centers. Indiana Bell Tel. Co. reported that precautionary measures it is taking include locking of certain entrances to buildings, indentification of all persons entering buildings, & discontinuance of building tours & open houses.

* * *

FCC Examiner Basil P. Cooper, in initial decision, approved application of 10 Bell System companies to purchase long-distance telephone business of Western Union, & Western Union's request to acquire message telegraph service of Pacific Tel. & Tel. Mr. Cooper ruled that Bell System,

devoting its full attention to its primary services & Western Union, concentrating on telegraph services, "can and will furnish the public superior services at lower cost." After oral argument on initial decision, final verdict will be up to full Commission.

* * *

California Electric Power Co. asked FCC for authority to acquire facilities of Interstate Telegraph Co., wholly-owned subsidiary providing telephone service in six California counties & four in Nevada. Interstate would disappear as corporate entity under proposal. Application stated no changes are contemplated in management, rates, or service.

* * *

As proposed by Wage-Hour Administrator William R. McComb, temporary regulations governing employment of operator-learners in Independent telephone industry at rates under new minimum wage were continued for indefinite period from July 25.

* * *

To continue staff work of Senate Interstate & Foreign Commerce Committee in its studies of several fields, including communications as well as merchant marine, airline industry, & domestic land & water transportation, limit placed on committee's expenditures was boosted by $69,000 in Senate floor action, July 27. Resolution calls for completion of studies by Feb. 28, 1951, but that date can be extended.

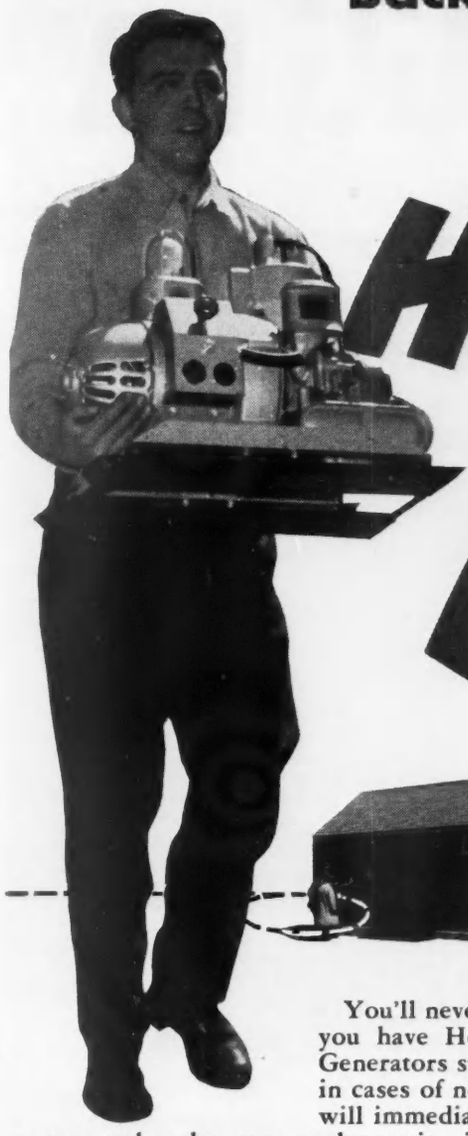
* * *

HIGHLIGHTS: West River Co-op. Tel. Co., Elgin, N. D., organized. August Bachmann is sec. . . . Organizers of Kidder County Tel. Co-op. met at Steel, N. D. Committee members are: Emmett Danielson, Clifford Cleveland, Tuttle, N. D.; Sam Kagan, Ervin Keim, Robinson, N. D.; R. J. Dougherty, Steel, N. D. . . . Rural Tel. Co-op. organized to serve Emmons County, N. D. . . . Charles Coventry, Linton, N. D., is one of organizers. Dan Nordstrum, Kintyre, N. D., heads membership committee. . . . Williams County Rural Tel. Co-op., Williston, N. D., organized. Henry Williams & Lloyd Esterby are organizers.

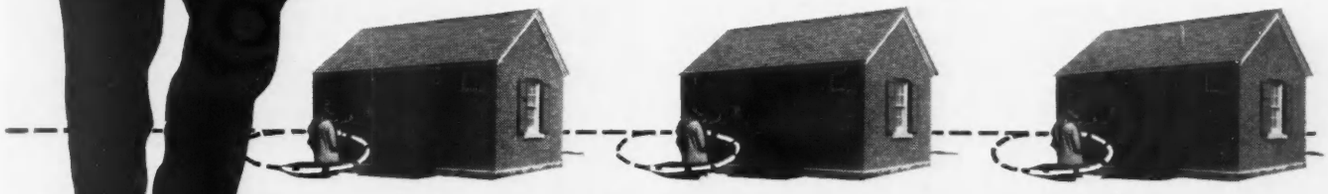
Deer Park (Wash.) Tel. Co-op. Assoc. organized. O. E. Hale is pres.; Orville V. Weldert, vice pres.; Helen Chandler, sec-treas. . . . James Valley Tel. Co., Forestburg, S. D., organized. Board members are: Floyd Noble, Art Hallander, Vernie Thompson, Alvin Larimer, Raymond Judy . . . Independent Tel. Co. of McKenzie County, Keene, N. D., announced plans to apply for REA loan. Earl Foreman is new sec.-treas.; succeeds R. J. Dinwoodie. . . . Regan-Alta Rural Tel. Co., Regan, N. D., seeking authority to discontinue service. . . . Board of directors, Petaluma (Calif.) Rural Tel. Co., voted to sell properties to Pacific Tel. & Tel. Co. . . . Augusta (Mich.) Tel. Co. installing new swbd.

Ray W. Smith, Editor

# Back Up Your Customer Service with



# HOMELITE CARRYABLE EMERGENCY POWER



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Yes, and you can have Homelite 115 volt, 60 cycle A.C. Generators . . . from 500 to 5000 watts . . . for operating lights, oil burners and other installed equipment as well as for charging batteries through regular installed rectifiers. Or, special 230 volt single-phase and three-phase 60-cycle generators as well. Write for complete information.

***Stick to the rule of three and you'll always stick to Homelite***

**1. PERFORMANCE** Quick starting at all times . . . weatherproof, dustproof and foolproof . . . a Homelite will always deliver the power you need without trouble. Its performance record in cases of emergency is one that is respected by all.

**2. DEPENDABILITY** In building more than 275,000 gasoline engine-driven units during the past quarter century, Homelite has always held to the big three of dependability . . . advanced designs, best materials, and precision workmanship. These three are always incorporated in every Homelite Unit.

**3. SERVICE** Homelite performance and dependability are backed by a trained group of Homelite representatives who are ready and willing to give prompt, on-the-scene service of all Homelite units in all sections of the country.

PERFORMANCE · DEPENDABILITY · SERVICE

**HOMELITE CORPORATION**

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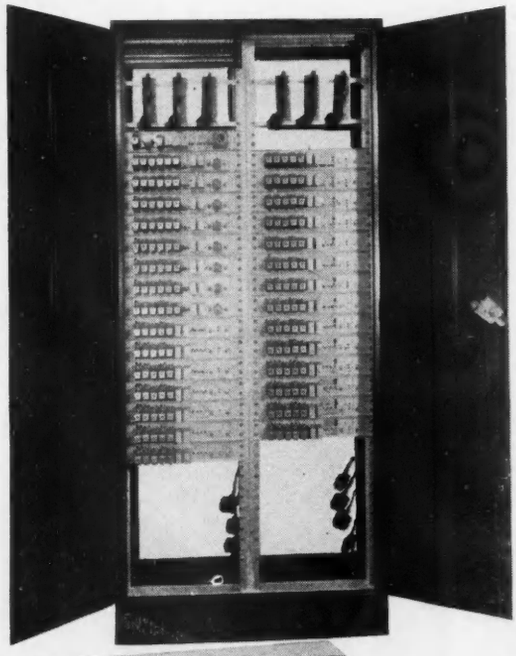
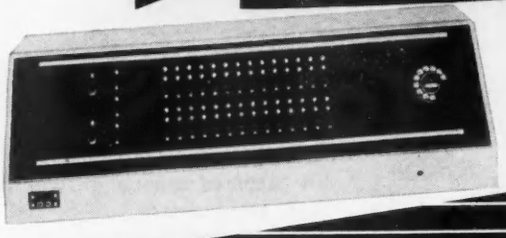
# *There's a* KELLOGG KEY SYST

## NEW Multiple Key Systems





**A new "call and answer" system by KELLOGG for industrial and municipal users for whom telephone communications are the lifeline of operations. Typical examples are taxi cab companies, trucking companies, air lines, fire and police departments, credit information bureaus, telephone answering services, order desks in department stores.**

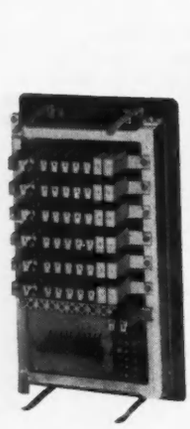
KELLOGG Multiple Key Systems provide a call and answer service to and from central office trunks and/or station lines terminating on the Key Turret of the system. They are designed primarily to speed up service where interconnecting of trunks with trunks or stations with stations is not required. Secret service for executives or other uses with exclusion features is provided.

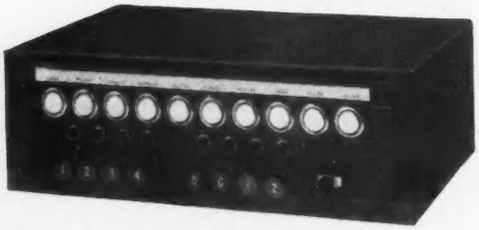
Multiple Key Systems consist essentially of Trunk Relay Cabinet, Key Turret, power equipment consisting of Battery Eliminator and Ringing Machine and necessary cable.

Trunk Relay Cabinets are universally wired for ultimate of 20 or 40 central office trunks and/or station line units. Trunk and station relay equipment is factory-wired *plug-in type*, on mounting plates that can be installed or removed in just a few minutes.

Key Turrets may be placed on any desk or table, with multiple appearances if needed for handling any peak traffic loads.

## KEY-BX Systems





**Fast, flexible and economical telephone service for offices, stores, banks, sales agencies, factories . . . wherever maximum trunkage with a lesser amount of intercommunication between stations is needed.**

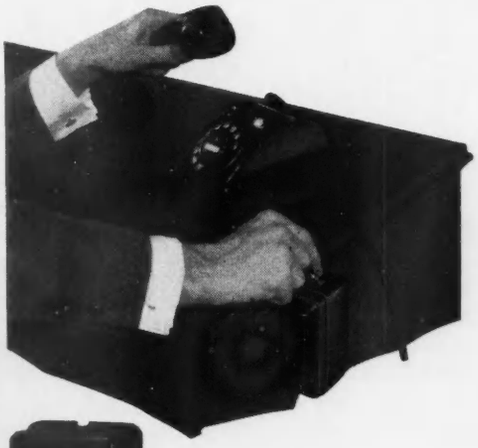
No special operator or attendant is required. Any station many originate outgoing calls—answer, transfer or hold incoming calls or intercommunicate with any other station in the system. Conference facilities between stations are provided. Each station has its own Key Box and telephone, without ringer.

Capacities range from several up to 20 internal stations, with each having access to 2, 3, 4, 5 or 6 trunks to a common battery manual or dial exchange.

KEY-BX Systems consist of Key Boxes, telephone instruments, wall-mounting Trunk Relay Cabinet, Rectifilter, Junction Box and cable. Trunks are factory-wired and tested *plug-in type*. No wiring of individual trunk relays is necessary.

# STEM for every service application

## NEW Inter-Tel System



**One of the simplest, most inexpensive key operated telephone systems ever developed for small individual line telephone subscribers requiring 2, 3 or 4 telephones connected to the same line.**

KELLOGG Inter-Tel eliminates interference and delays heretofore common with one or more extension telephones on the same line. With Inter-Tel any telephone may answer, transfer, hold or intercommunicate with any other telephone in the system. Each telephone instrument has a lamp supervision signal that glows when trunk or intercommunication facilities are busy. Each is equipped with a push button and a buzzer for signalling or receiving signals from any other station in the system, or for transferring calls. Inter-Tel may be used as a non-attendant system, with ringers in all telephones or as an attended system, with ringer only in the instrument of the person responsible for answering and transferring all calls. Available for dial or manual operation.

Consists of the necessary telephone instruments, Key Boxes, Relay Cabinet, Junction Boxes, Rectifilter and cable. No elaborate installation needed.

## *Large or Small . . . You Can Meet Every Subscriber Need — Economically and Profitably — with* KELLOGG

KELLOGG Key Systems help you to increase your exchange revenues, by furnishing a better, more complete subscriber service. For businesses and institutions they represent the most modern and efficient of telephone services. They're traffic builders because they encourage more complete use of your facilities . . . When you supply KELLOGG equipment you furnish the most modern any subscriber can have—backed by KELLOGG'S more than 50 years of progressive leadership—your assurance of superior performance at lowest operating cost. Start compiling your list right now of subscribers who need KELLOGG Key Systems—it's your first step toward greater earnings. Meanwhile write for full information on the various Key Systems listed here.

## Key Boxes

**The ideal switching facility for subscribers who do not require the answering and service features of Key-BX and Inter-Tel Systems . . . A profitable source of extra-revenue business from offices, clubs and homes.**

Three standard KELLOGG Key Boxes are available and other switching combinations can be provided for specific applications.

**No. 12 Key Box** . . . For switching a telephone instrument to either or both of *two* incoming lines or connecting a number of telephones to one line.

**No. 13 Key Box** . . . Similar, but offering facilities for switching to any one of *three* incoming lines.

**No. 24 Key Box** . . . Provides facilities for switching the telephone between *two* incoming and to *hold* one of these lines while using the other line for intercommunication.

**ASK YOUR KELLOGG REPRESENTATIVE OR WRITE DIRECT — TODAY — FOR FULL INFORMATION ON ANY OR ALL OF THESE KELLOGG KEY SYSTEMS**

# KELLOGG

**SWITCHBOARD AND SUPPLY COMPANY**

*Established 1897*

**KEY SYSTEMS**

6650 SOUTH CICERO AVENUE • CHICAGO

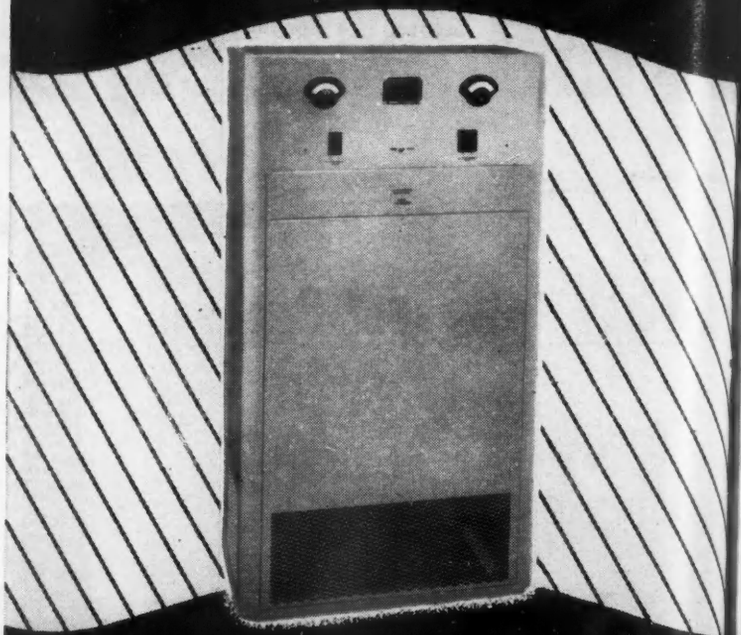
*EVERYTHING IN TELEPHONE EQUIPMENT*

*Factory and Offices of*
*Kellogg Switchboard and Supply Co.*

Manufacturers as well as distributors of the finest quality equipment and supplies for the independent telephone field for over fifty years.

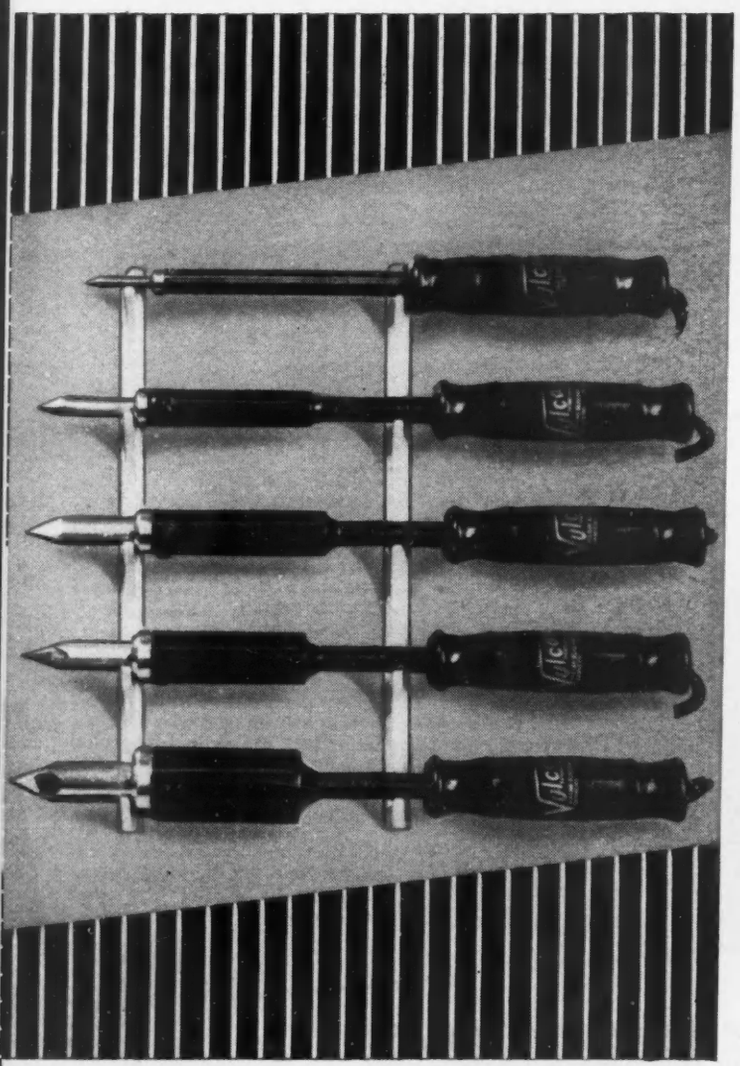
# 4 FLOTROLS

(30 MODEL)



## CONSUME LESS STANDBY POWER THAN 1 ROTATING TYPE BATTERY CHARGER

**Continuous and Substantial Power Savings** are assured by this constant voltage battery charger. 4 Flotrol Chargers will consume less standby power than 1 rotating type charger and will save on installation supervision and maintenance. Maintains close voltage regulation even under heavy transient load conditions. Made by LORAIN PRODUCTS CORP.



**The Right Size Iron Is Important** for every soldering job and when you choose from the line of Vulcan Soldering Irons you have a choice of 5 different sizes. Select plug tip shown above or the popular screw tip. Both provide constant, even heat for neat precision soldering. Made by VULCAN ELECTRIC COMPANY.

## *for* EASIER ORDERING PROMPT HANDLING QUICK SHIPMENTS

**...send your next order to KELLOGG**

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

*For Service from a Nearby Distribution Point, Order Your Line Supplies from*

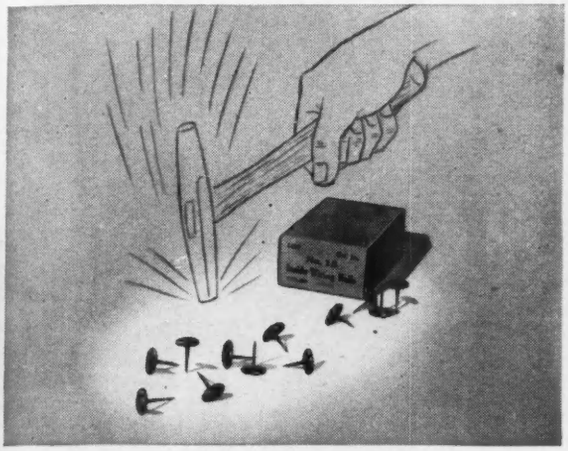
# KELLOGG SWITCHBOARD AND SUPPLY COMPANY

SUPPLIES

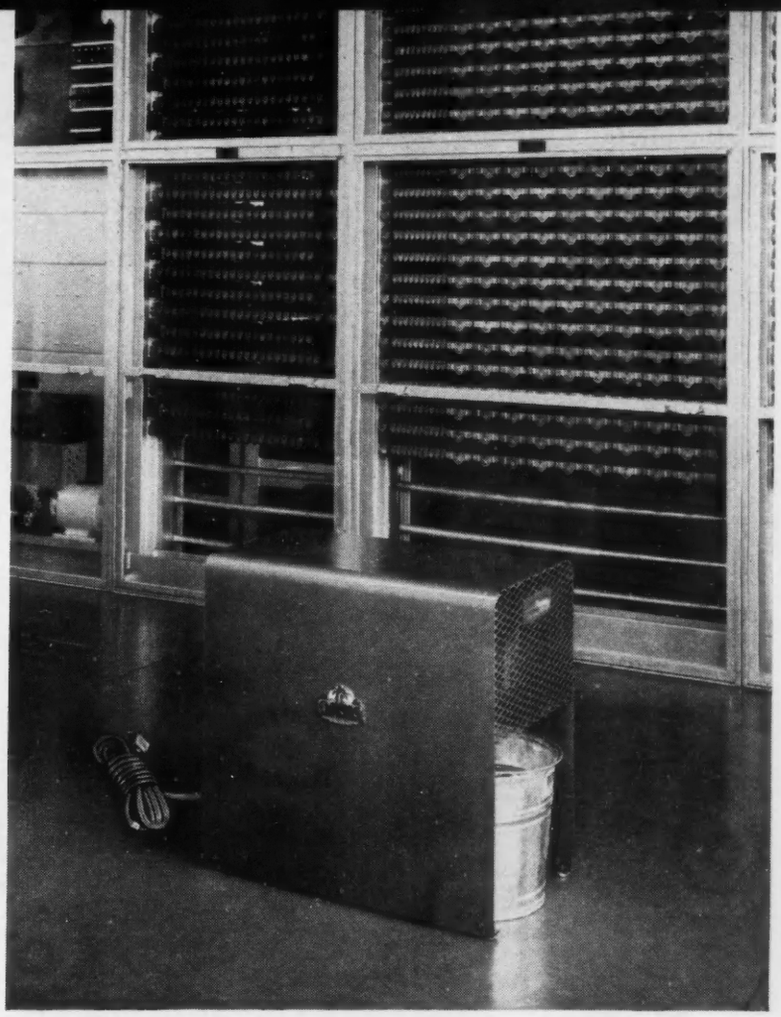
*Factory and General Offices:* 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
*Branch Offices:* KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FROM THE K

**Long Life Expectancy** is built into pressure-treated Southern Pine Poles and Crossarms. Carefully and thoroughly treated by the AMERICAN CREOSOTE WORKS, INC., these poles have the extra durability required for dependable service under the toughest climatic conditions.

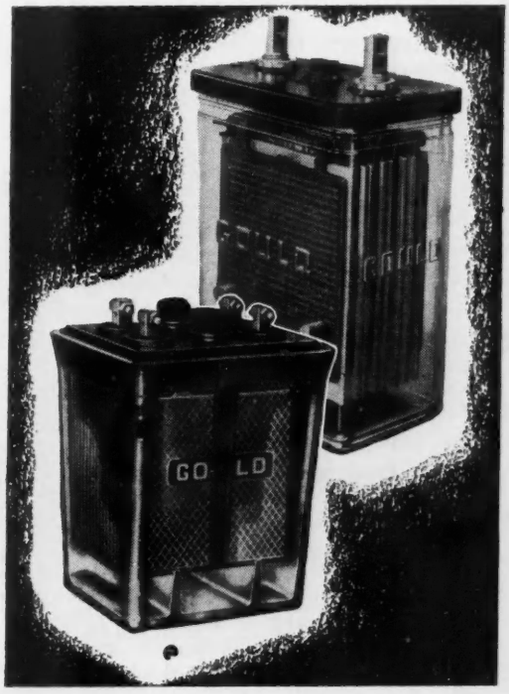


**Why Do It The Hard Way?** Making neat installations is easy—with Rhodes Telephone Wiring Nails! Designed for telephone work with quality insured by rigorous driving, bending, withdrawing and immersion tests. Made by M. M. RHODES & SONS CO., they're available in several colors and pin-lengths.

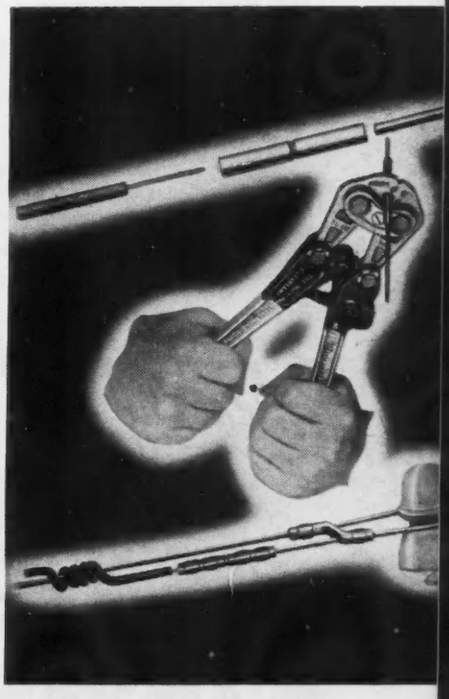


**Remove Excess Moisture From Air in General Dial Offices.** Keep relays dry with an Oasis Air Drier. Can be quickly connected to any electrical outlet. Completely automatic—no valves or thermostats to adjust. Easy to move, attractively finished, requires little maintenance and costs a few cents a day to operate. Made by EBCO MANUFACTURING CO.

**Save Three Ways** . . . on materials, man-hours, and maintenance with INDIANA STEEL & WIRE CO'S Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing Process, it is protected with a heavy, ductile, tightly-adherent coating of zinc.




**Your Battery Problems Are Solved** when you put Gould Planté and Floté Batteries to work. Unique features of design cut maintenance and charging costs, lengthen life and reduce replacements. Made by GOULD STORAGE BATTERY CORP., a leader in their field.



**Simple, Quick and Sure!** For Splicing two wires of different size, there's nothing simpler than using Nicopress Reducing Sleeves and the Nicopress Tool. Splices are always tight and strong. Tool and sleeves are made by the NATIONAL TELEPHONE SUPPLY CO.

WHAT—

*Nylon* CORDS?

*Yes*—and they're

1 **TOUGH**
Nylon thread used for the covering of these cords provides a superior tough outer braid capable of hard service.

2 **DURABLE**
Switchboard cords are subject to severe wear. Nylon covering gives long and exceptionally satisfactory service under hard usage.

3 **WATER-PROOF**
Chemists recognize Nylon as a material highly resistant to moisture and acids.

4 **MILDEW-PROOF**
Where mildew is likely to occur these Nylon cords are immune to its destructive action.

5 **RUGGED**
The unusual tensile strength of Nylon provides a ruggedness far beyond other types of cords.

6 **BEAUTIFUL**
The very name Nylon suggests beauty, quality and refinement. These cords live up to the name in every respect.

*ASK FOR*

*Runzel* V.N. SERIES *Nylon*

SWITCHBOARD CORDS

RUNZEL
Cord and Wire Co.
4723 W. MONTROSE AVE.
CHICAGO 41, ILL.

# *People*

BOB RAGAN, who has been employed in the telephone division of the Western Light & Telephone Co., Kiowa, Kans., the past two years, has accepted the position of local manager of the telephone system at Cimarron, Kans. The Cimarron system is owned and operated by the Western Light & Telephone Co.

O. B. LLOYD, publishing manager of the General Telephone Directory Co., with general offices located in Long Beach, Calif., has announced the appointment of DEAN R. PORTER as assistant publishing manager of the General Telephone Directory Co. Publishing Office located in Crawfordsville, Ind.

Mr. Porter began his telephone career in August of 1939 as supervisor of material and supply accounting in the state accounting offices of Indiana Associated Telephone Corp., Lafayette, Ind. He received subsequent advancements to supervisor of payroll, supervisor of original cost accounting and general ledger bookkeeper.

From April 1944 to May 1946, Mr. Porter served in the United States Army. After receiving his military discharge, he returned to the East Central Group of the General Telephone Corp., with offices located in Lafayette, Indiana, in the capacity of auditor of disbursements, this position being held until his resignation to accept appointment as assistant publishing manager of General Telephone Directory Co. in May 1950.

HAROLD A. WHITE has been appointed director of public relations for the Long Lines Department of the American Telephone and Telegraph Company. Mr. White, who will be in charge of the Long Lines information department, succeeds Kenneth P. Wood who transferred to the company's headquarters offices at 195 Broadway, New York City.

*HAROLD A. WHITE*

Mr. White was district plant superintendent at Washington during the war when Long Lines was faced with great demands for additional long distance facilities and service in the national capital. In 1945, he was appointed staff supervisor of overseas services, a post he held while radiotelephone service was restored to former war zones.

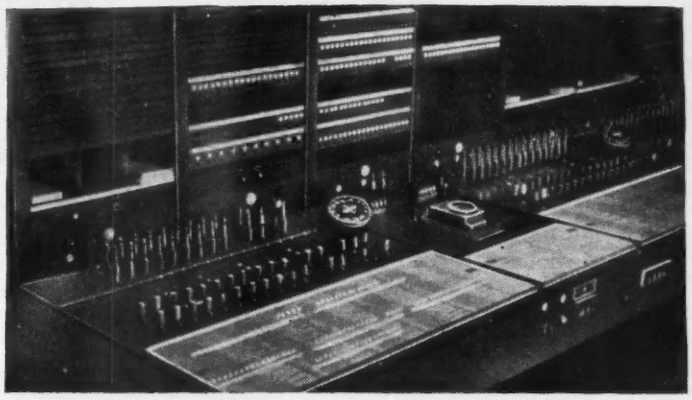
After serving as general service supervisor in the plant department at New York, Mr. White in March, 1949 was appointed area plant manager of the western area for the Long Lines Department with headquarters in St. Louis, the post he held until the present time.

Mr. White was born in New Haven, Conn., and was graduated from Yale's Sheffield Scientific School in 1928. In July of that year, he joined the Long Lines Department as a cable tester.

FRED SCHUNEMAN has been elected seceretary of the Lamont Rural Telephone Co., Medford, Okla., to replace ROBERT HARDWICK.

# CALCULAGRAPH ACCURACY!

## ...works for you in important cost-saving ways



Photos courtesy of Automatic Electric

MODEL 33
FOR SWITCHBOARD
MOUNTING - OTHER
MODELS TO MEET EVERY
INSTALLATION NEED

**AUTOMATICALLY FIGURES TOLL TIME!** With Calculagraph on the job, there is no need for time-consuming, service-slowing manual figuring of elapsed time. Calculagraph does it all quicker, easier and, most important, with complete accuracy.

**ACCURATE TO THE SECOND!** Calculations are accurate down to the last second. Authoritative and indisputable, they make it possible to collect all the revenue due on every toll call — a basic advantage in exchanges large or small.

**PERMANENT PRINTED RECORDS!** Calculagraph prints elapsed time on permanent toll tickets which make accounting methods simpler, more efficient. Toll tickets are easy to read, remain legible permanently and are available for reference at any time.

COMPLETE INFORMATION ON AUTOMATIC TOLL TIME CALCULATING AND RECORDING IS CONTAINED IN THE CALCULAGRAPH FILE CATALOGS . . . WRITE DEPT. A.

THE STANDARD OF ACCURACY SINCE 1892

**CALCULAGRAPH COMPANY**
**HARRISON • NEW JERSEY**

Please send copy of the new catalogs on automatic toll time calculating and recording.

NAME_____ TITLE_____

COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____

# A REPORT BY *Federal* TO THE

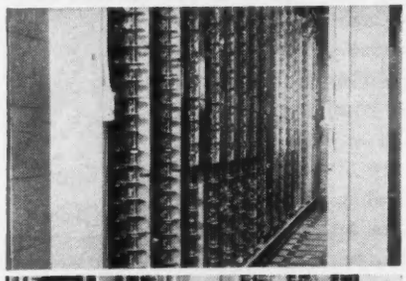
## *On Seven Recent Cutovers*

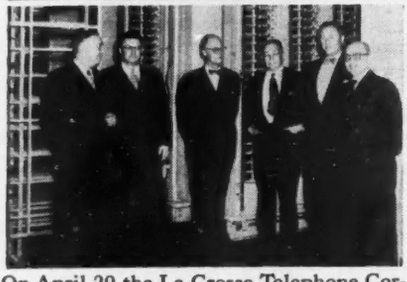
## FEDERAL DIAL SWITCHING EQUIPMENT PLACED IN OPERATION DURING APRIL IN WISCONSIN • OHIO • MICHIGAN

**Two Rotary and five Step-by-Step Cutovers provide Modern Dial Service for a Total of 14,420 Lines, 26,800 Terminals and Approximately 35,000 Stations.**

ANOTHER MAJOR STEP in the modernization program of America's independent telephone industry was accomplished by cutovers that brought modern, high-speed dial service to La Crosse and Onalaska, Wisconsin; Marion, Waldo, Green Camp and Morral, Ohio; and Three Rivers, Michigan. In each of these progressive communities Federal dial switching equipment was installed . . . Federal 7A-2 Rotary at La Crosse and Onalaska; and Federal Step-by-Step at Marion, Waldo, Green Camp, Morral and Three Rivers.

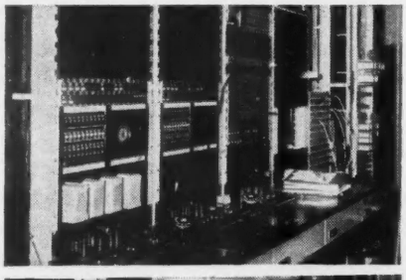
### AT LA CROSSE





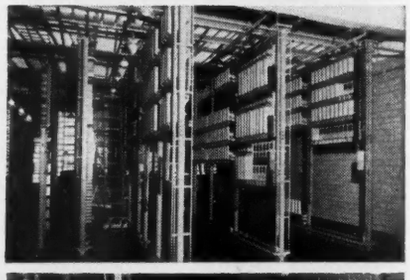
On April 29 the La Crosse Telephone Corporation, affiliate of Central Telephone Company, converted from manual operation at La Crosse to 7,500 lines and 14,600 terminals of Federal 7A-2 Rotary Dial Switching Equipment. At the same time, 300 lines and 300 terminals at the unattended Onalaska exchange also were converted to Federal Rotary operation.

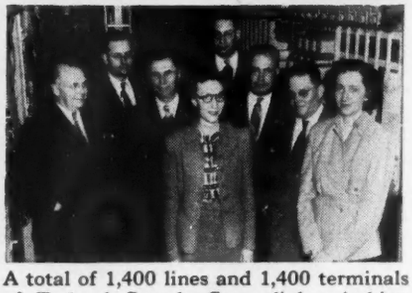
### AT MARION



New dial equipment went into operation on April 16 when the Ohio Associated Telephone Company cut over to 5,100 lines and 10,200 terminals of Federal Step-by-Step dial switching equipment. Three installations of unattended Federal Community Step-by-Step Exchanges in the nearby communities of Waldo, Green Camp and Morral had recently been cut over.

### AT THREE RIVERS





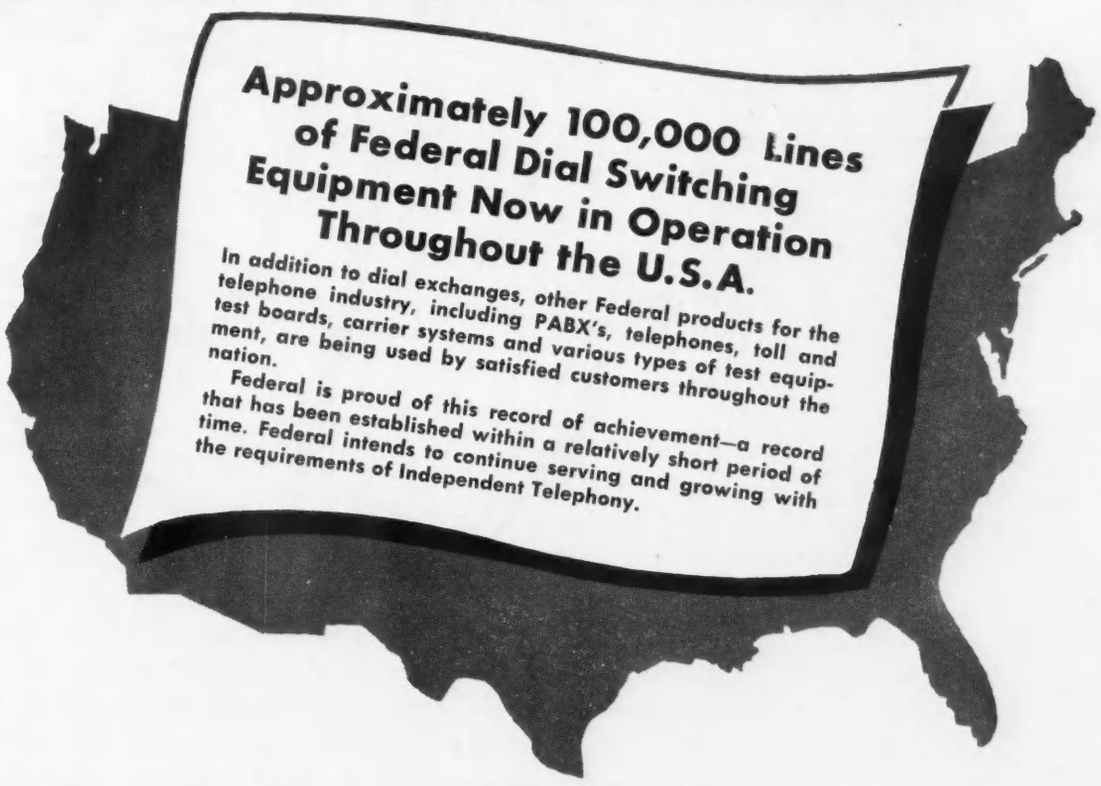
A total of 1,400 lines and 1,400 terminals of Federal Step-by-Step dial switching equipment were cut over on April 27 at the Three Rivers Exchange of the Michigan Associated Telephone Company. This conversion is part of a $750,000 modernization and expansion program at Three Rivers, including a new central office building and new outside plant.

FEDERAL TELEPHONE & RADIO — FTR — AN IT&T ASSOCIATE

*Federal Telephone*

# INDEPENDENT TELEPHONE INDUSTRY

## . . . and FEDERAL'S position in the Independent Telephone field today


Approximately 100,000 Lines of Federal Dial Switching Equipment Now in Operation Throughout the U.S.A.
In addition to dial exchanges, other Federal products for the telephone industry, including PABX's, telephones, toll and test boards, carrier systems and various types of test equipment, are being used by satisfied customers throughout the nation.
Federal is proud of this record of achievement—a record that has been established within a relatively short period of time. Federal intends to continue serving and growing with the requirements of Independent Telephony.

THE COMPANIES whose recent cutovers are reported here have joined the growing list of independent operators who have investigated and compared the dial switching equipment on the market today . . . and then specified Federal.

There are good reasons why these independent telephone companies have installed more than 100,000 lines of Federal dial equipment in recent years. Here are some of them:

- Federal is backed by the world-wide engineering, production and operating experience of International Telephone and Telegraph Corporation and affiliated companies . . . more than 40 years of expert know-how in every phase of the telephone industry.
- Federal telephone equipment is produced in one of the nation's newest and largest factories serving independent telephony . . . a million square feet of modern, streamlined production facilities.
- Federal Telecommunication Laboratories . . . more than 700 scientists working in this outstanding research and development center are making major contributions to communications progress.
- Federal customers have expressed their satisfaction and enthusiasm over the performance of their Federal installations.

With this record and background, you can be confident that Federal will continue to provide America's independent telephone industry with the most modern and dependable dial switching equipment.

No matter how large or how small your dial conversion requirements, there is a Federal dial system . . . Rotary or Step-by-Step . . . to meet your needs. For details, write to Telephone Sales Department.

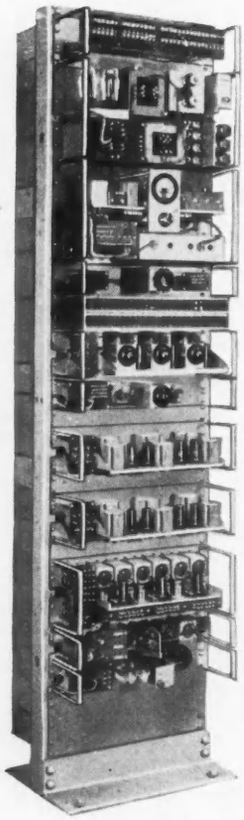
**Federal, a principal manufacturer of communications and associated equipment, is also serving pipe line companies, utilities, municipalities, railroads, airlines and other industries.**

## *and Radio Corporation*

**100 KINGSLAND ROAD, CLIFTON, NEW JERSEY** **In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.**
**Export Distributors: International Standard Electric Corp., 67 Broad St., N. Y.**

# "Four Voice Channels Now!"

## with Lenkurt TYPE 32 CD Carrier Telephone System



That's right! You can add **four** standard voice channels quickly, without the time and expense of new construction. "Up-to-the-minute" re-design of the famous Lenkurt Type 32C "3-channel" Carrier System has created the new Type 32CD, which provides up to **four** telephone channels by the most modern and efficient method. Its cross-country range is approximately 250 miles, which can be extended as required with repeaters.

Lenkurt Type 32CD terminal and repeater equipment comes to you factory-assembled and wired, ready for operation from either a-c or office battery power supply. Heavy-duty industrial-type tubes hold down cost of tube replacements. Toroidal-type filters are used throughout to assure maximum transmission efficiency and channel stability.

NOTE:
In certain applications, the frequency allocations used in this system will permit one Lenkurt Type 32CD and one W. E. three-channel terminal to work together.

**SEND TODAY FOR DETAILED INFORMATION**

MANUFACTURED FOR

**AUTOMATIC ELECTRIC**

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

**Distributors in U. S. and Possessions: Automatic Electric Sales Corporation**
**Export Distributors: International Automatic Electric Corporation**
**1033 West Van Buren Street, Chicago 7, U. S. A.**

# *Handles Steel Strand Easily*

## STRANDLINKS for Splicing
## STRANDVISES for Deadending

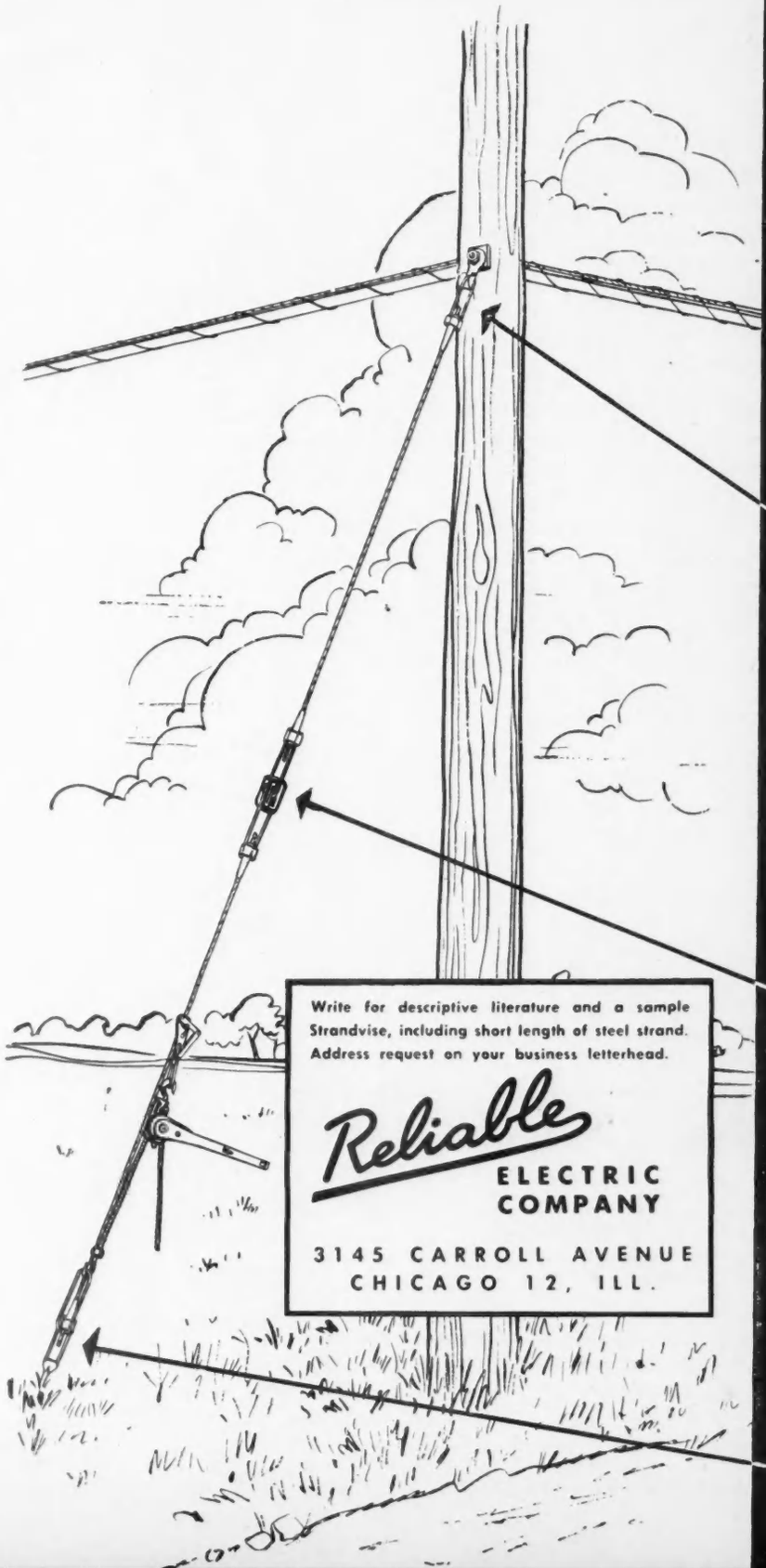
**Develop *ultimate* strength of any grade steel strand.**

Splices, made in a few seconds, do not interfere with spinning machines.

Strandvise with Stainless Steel (type 304) bail eliminates looping and clamping. Saves strand and saves time.

Stainless steel bail is preformed to fit all standard porcelain strain insulators.

Strandvises are so designed that applied tension feeds strand through Vise to any desired tension.



Write for descriptive literature and a sample Strandvise, including short length of steel strand. Address request on your business letterhead.

**Reliable ELECTRIC COMPANY**

3145 CARROLL AVENUE
CHICAGO 12, ILL.

# IMPORTANT NEWS...

## For Every Telephone Company That Has Made, or Plans to Make, Application for Increased Charges on Paystation Calls.

Automatic Electric takes pride in announcing the development of a new line of Autelco-Gray paystations and "conversion kits" which make it practical for you to provide ten-cent service. With the completion of these developments, you can now take the necessary steps to bring your charges for paystation calls into line with your regular subscriber rates.

Two classes of Autelco-Gray paystations and conversion kits have been developed to provide this service:

One class requires the deposit of a dime to initiate a call. Both automatic and manual paystations providing this service are now in commercial use in the Rochester, New York, area. You can provide this service, too, with 34A9, 150G, or 150GJ paystations now available from regular production. Or, you can modify existing paystations right in your own shop with conversion kits. These paystations can usually be used with only minor modifications of central-office facilities.

The second class of paystation, which has been developed for automatic prepay or semi-postpay ten-cent service, accepts either a dime or two nickels. In the case of prepay service the deposit is returned if the call is abandoned before completion; the first nickel deposited is also returned if, for any reason, the calling party does not deposit the second nickel. In the case of semi-postpay service the deposit of either a dime or two nickels will clear the transmission circuit after the called party answers. Complete paystations and conversion kits of the "dime or two nickel" class will be available for delivery early in 1951. Watch for future announcements.

For information on ten-cent paystations and conversion kits of either class, write or call Automatic Electric or any authorized distributor of Autelco-Gray paystations.

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# EDITORIAL

## The Price of Leadership

FOR A CENTURY and more the Roman Empire policed and defended a large part of the then known world, with hardly a day that did not witness Roman legions standing to arms or in battle somewhere in that world. In more modern times—the 1800's—the British Empire carried for decades the responsibility of protecting and keeping the peace in large areas of the world.

Now, through force of circumstance and in our own defense, the United States of America has been put in the position of being the leading defender of the free world against communistic aggression. And now Americans are beginning to learn something about the cost of such leadership; the cost in American lives—such as those now being lost in Korea—and in the billions of American dollars which must be redeemed by our toil and production and our natural resources.

The United States is now rapidly mobilizing its manpower and industrial and other resources to meet communist aggression such as that in Korea. This present mobilization will put the country well on its way toward total mobilization for global war—World War III—if that comes.

It is predicted that the cost of even this partial present mobilization, plus the cost of the economic and military aid we are giving to other non-communist countries, will consume about one-fifth of our large national production. It is also predicted that, barring some happening which would guarantee peace in the world for a long time—and that would be a near-miracle—this consumption of our production and natural resources will go on for years to come.

So that, even if World War III never comes, the people of the United States now face an abnormal situation which may, by lasting so long, become the normal situation in this country for many future years. Its redeeming feature is that it may prevent World War III.

The people of the United States must now condition themselves to live and carry on business under this situation.

What will this mean to individuals and business? Judged by what we already know of the plans of the government, the military and Congress, there are signs that even this partial mobilization will create conditions in this country not far from those existing during the actual fighting in World War II. There will be much higher taxes, of course—and soon. There will be new governmental controls, allocations, priorities; perhaps even price and wage freezes. Drafting of manpower for the military has already begun; there may be drafting for production.

There will be division of important materials from civilian to military use. There will be control of credit and of construction activities which use strategic materials. There will in due time be shortages of a number of things desired for civilian use. Military needs will have preference over civilian needs.

The memory of the situation in this country during World War II is still fresh enough in the minds of most of us that we can visualize about what is coming now. The essence of it all is that "business as usual"—or at least as it has been during the booming postwar years—is out of the window; probably for years to come and for the remainder of the lifetime of many of us.

This is the situation we must face, but we do not need to face it with dread or fear. It is certainly much better than global war, which it may prevent. And even eighty percent available for civilian use of the vast production of this country is a situation far superior to that existing in most other countries of the world.

Experience has shown that Americans and American business can successfully condition themselves to meet such a situation as that now facing them. They did so during both World War I and World War II. It is the price we must pay for our leadership in the defense against communistic aggression, and if it prevents another world conflict it will be a bargain.

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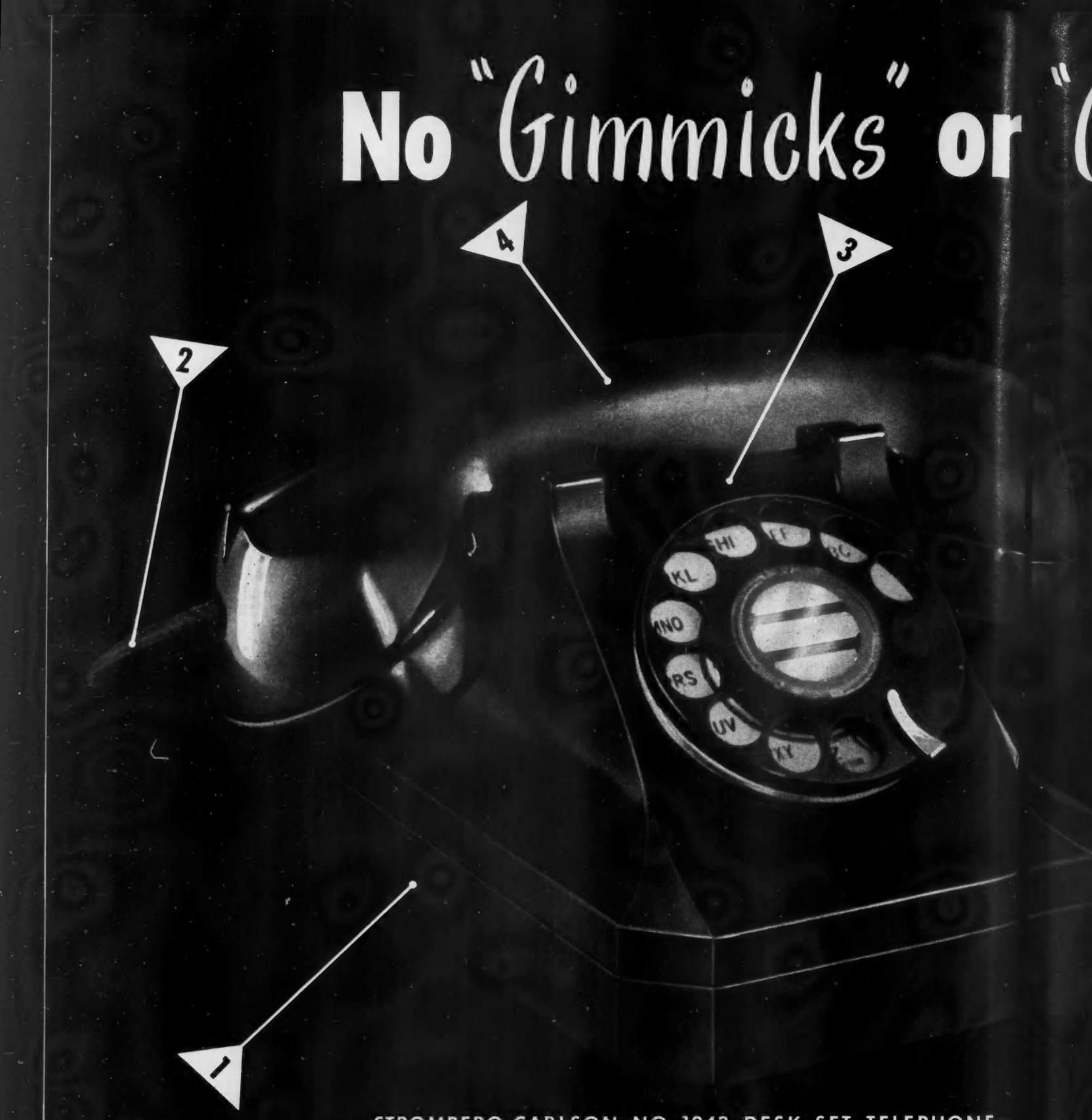
# No "Gimmicks" or "

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3. The convenient lift bar provides a hand hold for moving the instrument. Provision for the Stromberg-Carlson *two-step hook switch operation* is accomplished with a simple adjustment plus a "Press-to-Dial or Talk" label plate—a blessing wherever dial service includes party lines.

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# WASHINGTON BUREAU REPORTS

*by Roland Davies and Fred Henck*

**TELEPHONE INDUSTRY will feel effect of total mobilization of manpower and resources . . . Boosted taxes accepted as necessity to set up partial or full war economy.**

WITH A MONTH of the Korean war now gone into tragic history, the yardstick of its impact on Congress in taking measure of the international situation has been felt in the changing mood of Senators and Representatives with regard to the powers that should be granted President Truman for mobilization of manpower and resources.

As more Republicans and a few rebellious Democrats turned to the thought of more controls for the Chief Executive the opinion began to gain strength in Washington that limitations on Administration powers would be broken down gradually until through statute or perhaps by general acceptance of necessities of the moment the President would hold the reins on mobilization, allocations, rationing, price scales and wages.

Up to the latter part of last month, as far as could be analyzed, the impact of partial mobilization upon the communications field in the supplies of strategic materials available and in the enrollment of personnel in the armed forces was expected to be comparatively light.

But with any overnight change in the picture—possibly to total mobilization—the telephone field would promptly feel the effect of manpower, allocations, and rationing controls.

In the construction end of the industry, the effect of total mobilization would probably be greater, comparatively, than in most other fields. Under the necessary long-range planning of telephone companies for their construction, there could be no "speed up" such as could be undertaken by other industries to meet their estimated wartime or "war economy" needs.

With any suggestion of full mobilization for the near future, the telephone industry—both Independent and Bell System—would also feel heavily the impact of stockpiling of metals, particularly, to meet any emergency that might loom. Shortages of such metals as steel and copper could place the telephone industry in a wartime-tight situation even if the threat of large-scale aggression did not materialize.

The calls on the manufacturing portion of the telephone industry are going to be increasingly greater as the U. S. military force expands. In the telephone-manufacturing field, as its commitments to the military go on the increase, there is expected to be a considerable drop-off of supplies for regular service demands because of the tight manpower situation which is already accepted throughout the country as very serious.

If added workers, in large numbers, should not be available to the industry while at the same time the A-1 priority military orders continue to pour in, of necessity the "give" will have to be on the non-military side.

Only recently, some indication was given of the speed-up which will be effected to furnish vitally-needed communications equipment to the armed forces. Maj. Gen. S. B. Akin, Chief Signal Officer, completed a tour of communications-electronics industry centers where he stressed the need for expeditious production by contractors to insure the fastest deliveries possible on equipment now on contract. He explained, significantly, that Army Signal Corps procurement plans are completely settled except for quantities which will depend upon developments of the current international situation.

Among the dollar value items of procurement by the Signal Corps will be included dial switchboard equipment, meters and testing apparatus, new lightweight teleprinters, a 500-watt amplitude modulated radioteletype, high frequency radio relay terminal signal units and other material.

A highly significant meeting, which is expected to turn up with more solidified plans on what the communications industry will be expected to produce for the military is that planned for the Electronics Industry

Advisory committee to the Munitions Board. This meeting will be held at the Pentagon on August 14, having earlier been planned for September 24.

In the kaleidescope picture of controls now emerging out of Washington, the mandates over the allocations and priorities on the strategic materials, including aluminum, copper, steel and lead, are certain to be administered by the Department of Commerce.

After Congress approves the new control powers over strategic raw materials, the Commerce Department is expected to establish a communications-electronics-radio division to administer the allocations and priorities of the critical metals and materials for that field, but the communications manufacturing industry has the heritage of being essential so that restrictions, even with full mobilization, would come under a pattern of maintaining as high degree of service as possible.

On manpower the Department of Labor will be given the responsibility by Congress to handle the classifications and deferments of skilled technical personnel in the communications and electronics fields. It has been learned that Charles Straub, Special Assistant to the Secretary of Labor, is acting as liaison officer of the department with the National Security Resources Board in the preparation of a list of critical jobs in the industry and of classifications of workers on the basis of skills and employment based on information from the Department's Employment Security Division. This would be the basis for classifications of workers, it is thought, for exemption from the draft and will be largely similar to the exemption scale drawn for World War II.

The National Security Resources Board is to be the planning agency for the general materials controls and will undoubtedly exercise overall responsibility over their implementation and broad procedures. In the NSRB, the official in charge of all communications-electronics matters is Leighton H. Peebles who is well known throughout the entire communications field.

### Taxes

BOOSTED TAXES are accepted as an absolute necessity to set up the country on a partial or full war economy but the presently-proposed corporate income and excess profits taxes would be felt most heavily on regulated industries such as telephone.

## Coming Conventions

*Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept.* 14 *and* 15.

*Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept.* 21 *and* 22.

*Tennessee Independent Telephone Association, New Southern Hotel, Jackson, Sept.* 27.

*United States Independent Telephone Association, Hotel Stevens, Chicago, Oct.* 9, 10, *and* 11.

*North Carolina Independent Telephone Association, Carolina Inn, Pinehurst, N. C., Oct.* 16-17.

*South Dakota Telephone Association, Cataract Hotel, Sioux Falls, Oct.* 26-27.

*South Carolina Independent Telephone Association, Wade Hampton Hotel, Columbia, Nov.* 6-7.

*Georgia Telephone Association, Dempsey Hotel, Macon, Nov.* 9 *and* 10.

*Florida Telephone Association, Sheraton Plaza Hotel, Daytona Beach, Nov.* 13-14.

*Missouri Telephone Association, Muehlebach Hotel, Kansas City, Nov.* 20-21.

The corporation tax plan, which would be effective on 1950 corporation income, would have a marked effect on the net income of regulated utilities whose rates have been geared on the basis of the existing 38% corporation tax rate. Its result would be an increase in corporation taxes of about 20%, and a consequent shrinking of the rate of return estimated from existing rates.

It is also accepted in this picture that increases in individual taxes will result in demands for wage increases, further pressured by increases in the cost of living.

It is probable that in the consideration of the proposed excess profits levy Congressional groups will be presented with strong statements from regulated utilities that there should be no excess profits under proper rate regulation, and the regulated utilities have no opportunity to profiteer even if they should be so inclined.

### Defense Functions

THE PART telephone companies will play in civilian defense planning is expected to be outlined in the affirmation of September 8 as the date on which the first formal, full-scale blueprint for a national, state and local civil defense organization will be released to the Council of State Governments in Chicago. Paul J. Larsen, Civil Defense Director said the meeting would take place then. The plan outlines basic responsibilities and functions of state and local officials and the military, and includes the civil defense services of communications, engineering, fire, police and others.

### Programs of Non-Defense Agencies To Be Curtailed

THE PROGRAMS of non-defense agencies will clearly be curtailed, in some instances to the lowest point of the post-World War II period, in the remainder of the current fiscal year, it became apparent Thursday, Aug. 3, when the Senate approved the Bridges-Byrd economy amendment cutting 10% from the Senate Appropriations Committee's recommendations for funds for a wide variety of non-military agencies.

For some agencies, including the FCC, the Senate funds action means a lower figure than that approved by the House, even after the Taber-Thomas economy amendment was approved in the lower chamber. The differences in the two bills must be adjusted in conference, but since both houses in effect approved 10% slashes the trend is sharply downward. Overall saving in the Senate action is more than $500 million.

One basic difference of the two amendments is that the House slash was directed at the Budget Bureau-approved funds, and where the House Appropriations Committee had already endorsed cuts of 10% or more in those allocations, they were untouched by the Taber-Thomas amendment. This was true particularly for the Rural Electrification Administration's rural telephone program.

The FCC, for example, was allotted about $6.9 million by the Budget Bureau. The House Appropriations Committee cut this figure to $6,625,000, and the Taber-Thomas amendment drove it down to about $6.2 million. Since the Senate amendment was directed at the $6,625,000 amount, also approved by its Appropriations Committee, the Senate-endorsed fund for the Commission is about $5.95 million.

A major problem for agencies such as the FCC now will be that a month of the present fiscal year is now past, and additional time will be required to make the cutbacks. Thus the curtailment for the last three quarters of the year will be closer to 15% than 10%.—THE END.

*W. R. Council of Council Construction Co. views the remains of nine-foot-high blackjack oak brush, sprayed with "Ammate" weed killer a year ago. This is along the S.W. Bell Tel. Co. right-of-way, east of Norman, Okla.*

# Are You Spraying Your Right of Way?

*By Dr. Arne E. Carlson*

**Brush Control Specialist**
**E. I. Du Pont de Nemours & Co., Inc.**

SOMETIMES the tide comes in before we've quite decided where we should dig for the clams!

Such is the situation many a utility organization finds itself in today regarding chemical clearance of rights-of-way—a "new-fangled" idea that line maintenance personnel thought of as a future possibility, only to discover it has become an established program along both telephone and power lines in many sections of the country.

The transition from brush hook to spray nozzle is being accomplished at a fast clip. In its October issue in 1947, The Davey Bulletin, house organ for the Davey Tree Expert Company of Kent, Ohio, dedicated a picture-filled issue to "Chemical Brush Control—A New Service."

Last October, two years later, Homer L. Jacobs, technical service director of the Davey organization, addressing the convention of U. S. Independent Telephone Association in Chicago, listed plant superintendents of telephone companies who have made much progress in chemical brush control, and pointed out that this new technique of keeping the lines clear of undergrowth "is beyond the 'let's hope it works' stage!"

By this, Mr. Jacobs was not implying that those working with brush control chemicals know all the answers. He was merely indicating that after a few short years of using these chemicals and observing results, they know what to expect when a given concentration of a specified chemical is sprayed on most any type of growth.

There is still plenty of experimental work being done. Throughout the entire Bell System, an interchange of information on results of spray work carried on by the various companies is practised with the view of adding to the general store of knowledge on this subject. In addition, Bell Telephone Laboratories are conducting their own research with the many weed control candidates, under a wide range of conditions.

But this has not kept progressive companies from making practical use of the knowledge that has already been gained. A good example is a 13-mile stretch of telephone cable in New York state which was sprayed a year ago by Tree Preservation Company of Elmsford, New York. It is in rough country and a spectacular sight, that 50-foot-wide belt of brown,

Spraying an Osage-orange hedge along American Telephone & Telegraph lines between Columbus and Cleveland, Ohio. — (Davey Tree Expert Co. photo)

View of the same span at A. T. & T. lines a year later, showing unhappy condition of the brush hedge.— (Davey Tree Expert Co. photo)

*Note this re-growth a year after hand-cutting along a cable right-of-way near Monticello, N. Y.*

This cable right-of-way paralleling the one shown above was sprayed with "Ammate" by Tree Preservation Co., of Elmsford N. Y., a little less than a year before the picture was taken.

here diving down into creek beds and there climbing steep hills in the distance. A similar cable runs parallel to the sprayed right-of-way for part of this distance. Here the brush was hand-cut, also just a year ago. The rank growth of maple, oak, ash and other brush is a striking contrast to the brown, dead stems in the sprayed area nearby.

This is typical of hundreds of other examples throughout the country. A look is worth 10,000 words of persuasion. Here is living evidence that the old method of hand cutting aggravated rather than cured the brush problem. Nature has a way of throwing in her reserve forces to compensate for any injury. When live roots are left in the ground, the normal reaction is a rush of sprouting to regain a leafy canopy above ground to continue feeding energy to those roots.

Mr. Jacobs quotes a Pennsylvania line superintendent, remarking on this recovery ability. "Cut one six-inch wild cherry this year and next year you'll save six one-inch wild cherries. Cut that six and the following year you'll have 12 or more half-inch sprouts where originally you had one tree."

Chemical treatment of brush is, of course, not new. Years ago it was tried with such materials as diesel oil, creosote, sodium nitrate, sodium arsenite, sodium chlorate, sodium chloride, copper sulfate, potassium nitrate and ammonium nitrate.

For the most part, the kill gained with these chemicals was unsatisfactory. But there were more serious disadvantages, too. Some of these materials were highly poisonous to livestock, pets and wild game that roamed across the rights-of-way. Others offered a serious fire hazard. And some of them made the soil sterile, preventing growth of grass and annual weeds which could have formed a turf condition in time, discouraging erosion and re-growth of the woody plants.

Then, during the war years, new chemical tools to fight brush were developed. First to receive much publicity was 2,4-D. It is still attracting much attention as a selective weed killer for agricultural use—killing cockle bur, mustard, bindweed and other broad-leafed pests, without destroying narrow-leafed crops which they infest. For brush control purposes, it was too selective. Applicators found it did not do a job on such brush as oak, hickory, ash, hawthorn, red maple and other hard-to-kill species.

Today, a relative of 2,4-D, known as 2,4,5-T, is finding much greater

acceptance for brush control work. It is not as selective. It kills many plants that could survive drenchings with 2,4-D. It is gaining quite a reputation in the Southwest, for instance, as a promising destroyer of mesquite —a major brush problem on cattle rangelands. It has also given good results in other areas where it has been tried out on brambles and osage orange.

In some cases these two chemicals, known as hormone sprays, are being combined to spray brush. Their application seems most effective on low-growing bushes, rather than on larger trees, and they are being scrutinized particularly as possible brush killers when used on cut-over areas during the dormant period. One marked disadvantage has been spray drift and volatility. This applies to the ester formulations commonly used. In numerous instances this drift has ruined nearby sensitive crops. The amine formulations show evidence of being safer to use under these conditions.

*A glimpse of the sprayed cable line near Monticello, N. Y., showing contrast with dense surrounding growth.*

During the last two war years, a product developed by Du Pont research began playing an important role in the elimination of unwanted growth. Ammonium sulfamate, known commercially as "Ammate" weed killer, first won acclaim in this field among foresters in the southern pine woods, where undesirable hardwoods were crowding out pine seedlings and robbing the lumber industry of its future stands. Used both in solution and in dry crystalline form, it was introduced into cups or girdles cut in these hardwoods and produced such complete kill of the trees that there was little or no sprouting from the roots.

Much earlier "Ammate" had won recommendations throughout the country as a spray to kill poison ivy, poison oak, ragweed, etc. Here, again, by the process known as "translocation," it was noted that the chemical was absorbed from the leaf surface and carried down into the root system to produce a complete kill of the plant.

Speaking of "Ammate" solution for brush control, Mr. Jacobs says: "This chemical is as effective on woody growth 15 to 20 feet high as it is on stems three to four feet tall. For this reason and because of its non-selectivity it is perhaps most valuable for difficult situations."

Here, then, are the new chemical tools, awaiting the use of the line superintendent, to promote clean rights-of-way, readily accessible to inspection and service crews. Certainly there will be newer and better chemical tools developed in the future. Television in color is on its way, too, but that has not deterred the American public from their enjoyment of the TV entertainment available today.

*Close-up of the sprayed right-of-way near Monticello, N. Y., showing the condition of completely killed brush a year after treatment.*

Sounds quite simple, doesn't it? That's because we've hit only the sunny spots, the optimistic side of the picture. The problems involved are just as complex as the many variations in plant growth that exist along your most overgrown right-of-way, as time-consuming as the distance your spray equipment may have to travel for its water, as rough as the terrain your sprayers may have to penetrate to cover the growth with the chemical solutions, and as unpredictable as the weather.

All these elements will enter into the cost of spraying any given cable right-of-way, and into the effectiveness of the material that is applied. As with any operation involving labor, the human element plays an important part.

Equipment varies a good deal. Let's hark back to the New York cable job described earlier. This was an "Ammate" job, handled with an Army six-by-six truck equipped with

(*Please turn to page* 60)

# "That Rural Telephone Bill"

*By Gustav Hirsch*

Pres., Hirsch Organization, Inc.
Columbus, Ohio

NO MATTER how you look at it there are two sides to every question.

The Congress of the United States enacted into law on October 28, 1949, Public Law No. 243, which was designed to extend telephone service into rural areas of the United States.

To accomplish this, the law assigned to the Administrator of the Rural Electrification Administration, the authority and responsibility for administration of the law.

Remember this: Our government, or, if you wish to simplify the fact, the taxpayers of the United States are furnishing the money for the extension of lines in rural areas, which will be made through government funds loaned to operating telephone companies, who apply within one year from October 28, 1949 for a loan, and to cooperative groups who apply.

There is a prohibition as it relates to the duplication of facilities already provided, providing the present facilities render reasonably adequate service. This clause permits governmental dictation to determine whether or not facilities already provide reasonably adequate telephone service. (This is one of the flaws in the law, and permits of arbitrary action on the part of the bureaucratic employees, who wish to parallel the facilities of already existing telephone companies, and this clause is going to give existing operating telephone companies many headaches).

The law, where State Regulatory Bodies exist having authority over telephone companies, requires the obtaining of a Certificate of Convenience and Necessity of these bodies before the division of territory may be had, or begun, in a territory in such State. However, again pressure may be expected to be exerted on the staffs of the State regulatory commissions to get them to acquiesce in the granting of Certificates of Convenience and Necessity. In other words, the issue can become a political one with cooperatives putting pressure on the State Regulatory Bodies, or on the State Legislators, or on both, to change the law.

There is a savings clause in the law as enacted, in that the bill permits loans for the improvement and extension of telephone service in any area outside cities, villages, or boroughs, having a population in excess of 1,500. Again, as I see it, pressure will be exerted in many sections of the country to eliminate this provision of the law or to modify it to permit approval of rural telephone loans to smaller communities and then to extend the same thing to larger communities, inasmuch as many people are moving into the rural areas from the cities. In fact tremendous growth is indicated in suburban and rural areas due to city people moving to the farm and demanding telephone service.

The serious feature of the law is that all of the people of the United States are assessed through taxation

GUSTAV HIRSCH

to provide telephone service in rural areas not now served by telephone companies. This service will be provided at rates that do not give sufficient return to the lending agency to enable it to stand on its own bottom, in connection with the loaning of the funds provided by the tax payer at an uncompensatory rate, as the loans are to be made on a 2% per annum basis, which certainly will not permit meeting the other costs in connection with administration of the loans. On the first 25 million dollars appropriated these administrative costs amount to $900,000.00, calling for a carrying charge of 3.6%. If this is typical of the loans being made at 2%, the government (*i.e Tax Payer*) will have to absorb the 3.6%. Of course, the administrative costs depend on total size of the loans.

We all know that once a government lending agency is created, it not only has a tendency to grow, but does grow indefinitely and the bureaus ultimately spend far beyond the needs originally intended to be met.

Everybody knows that a bureau, once created, never ceases to exist. Since these loans run for 35 years, the ghost created by this law hangs over the industry for at least 35 years after the last loan is made. This may be 10 or 15 years from now, so the Congress-created bureau will operate for at least 50 years from the day of its original loan.

To perpetuate itself and make it easier for the R. E. A. to operate and hand out government money (*that is the taxpayer's money*) a Model Bill has been drawn up by the parties in power in Washington. This Bill is designated as a *Model State Co-op Telephone Bill*, and has been furnished to each State's Legislature. On analysis, we find that this Bill as drawn would: (1) Divide rural areas, or permit unlimited duplications of service and facilities; (2) permit the use, without limitation, of public roads, highways, streets, alleys,

bridges and causeways, and (3) give the power of eminent domain to cooperatives.

*The Model State Co-op Telephone Bill* would also:

(1) Allow cooperative telephone companies, or borrowing parties, to become members of other cooperatives, or corporations, or to own stock therein, and to perform any acts and exercise any powers that may be necessary, convenient, or appropriate to accomplish the purpose for which organized.

(2) Permit boards of directors to change by-laws, limiting the members of the corporation to but one vote.

(3) Allow members of corporations who are members of co-ops to be directors of corporations or companies obtaining these loans.

(4) Provide a *2-year statute of limitation*, on actions such as the construction of/or maintenance of lines.

(5) Provide a 2-year statute of limitations on the actions of boards of directors, as such actions might effect the maintenance of lines or maintenance of real estate.

(6) Permit foreign cooperatives to construct or acquire and operate, without qualifying under State laws.

(7) Exempt, foreign cooperatives from all State Excise Taxes, except for a total of $10.00.

(8) Permit foreign cooperatives to require that other cooperatives and telephone companies be compelled to interconnect with them.

(9) Exempt the cooperatives from filing securities issued by them, under the Blue Sky Law of the State. This also applies to foreign cooperatives.

It would seem that the Model State Cooperative Telephone Bill, as drawn, places telephone cooperatives, whether domestic or foreign, outside the pale of the laws of the State, in which they operate, directly, or indirectly, and would permit telephone cooperatives to do the things that the power companies did, and which they are now being forced to undo—such as reaching out in every direction for more power and more extensive coverage. It seems to me that this is a pure case of an attempt to, ultimately compete with the existing tax paying, privately-owned commercial telephone companies, in the territories in which they operate by the use of cooperatives and small telephone companies.

In addition the tax payer's money is being used, through government loans, to permit financing of companies, many of which will not be able to repay the loans at any time. If past history were to be considered, many of the companies will become bankrupt before the 35-years are over, and the tax payers will take the loss, just as they have taken it in the case of the Lustron Corporation and many others where good intentions started with the lending of government money but lead to bankruptcy and criticism of the intelligence of the lending agency and its administration.

The only good feature that I see in this law, is that it will enable rural dwellers to have telephone service, in lean territory through the South, the far West, and the isolated territories in the East, who do not now have service, and who cannot be served profitably by any privately-owned telephone company. The blessing of telephone service for these people will be beneficial to the nation, as well as to the people themselves. However, we cannot get away from the fact that they are being served through subsidy and whenever people are served through subsidy, no matter what it is, they are tied to the apron strings of the government agency. From that time on, no matter how they squirm, Mother will hold them to that string, and the string will ultimately become unbearable and lead to Government Ownership.

# Book Reviews

**An Introduction To Carrier Current Communications, published by Automatic Electric Company, Chicago, 136 pages, 1949, $3.00.**

Publication of the above volume has been announced by Automatic Electric Company to meet the need among telephone men for an easy-to-understand introductory text on carrier telephony and telegraphy. It will be found especially valuable as a prerequisite for an understanding of the technical treatises and instruction manuals covering specific systems of various carrier equipment manufacturers.

The book begins with a discussion of basic wave principles, and carries the reader by a series of carefully graduated steps through discussion of filters of various kinds, electronic tubes, modulators and other principal elements of carrier systems, and into discussions of two-wire and four-wire systems, carrier on radio, and carrier telegraphy.

Its use of everyday terms and simplicity of style makes the book readily understandable by anybody who has had elementary electrical training or practical experience in electrical communications.

**A.S.T.M. Standards On Electrical Insulating Materials, (With Related Information), published by American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa., $4.85.**

This 670-page book includes all of the standard and tentative test methods and specifications pertaining to electrical insulating materials, which have been issued largely through the work of the American Society for Testing Materials Committee D-9 on Electrical Insulating Materials.

Some idea of the coverage of the standards is given by the following list of materials and subjects included, together with number of standards applicable:

- Insulating Shellac and Varnish (6)
- Plates, Sheets, Tubes, Rods, and Molded Materials (36). Also 2 recommended practices.
- Mineral Oils for Electrical Insulation (11). Also 1 recommended practice.
- Ceramic Products (Glass, Porcelain Steatite) (7)
- Solid Filling and Treating Compounds (2)
- Insulating Fabrics and Textile Materials for Electrical Insulation (16)
- Insulating Papers (5)
- Mica Products (6)
- Electrical Tests (6)
- Servicing Units and Conditioning Methods (5)
- Plastics for Electrical Insulation (5). Also 2 recommended practices.
- Rubber Tape and Electrical Protective Equipment (8)

Many of the specifications and tests have been revised recently by the Society.

Copies of this publication, heavy paper cover, can be procured from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., at $4.85 per copy.

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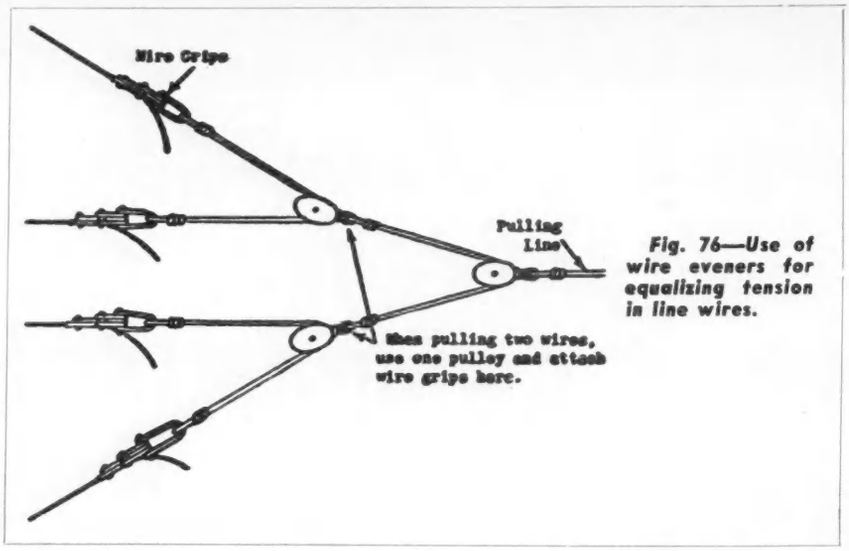


*Fig. 76—Use of wire eveners for equalizing tension in line wires.*

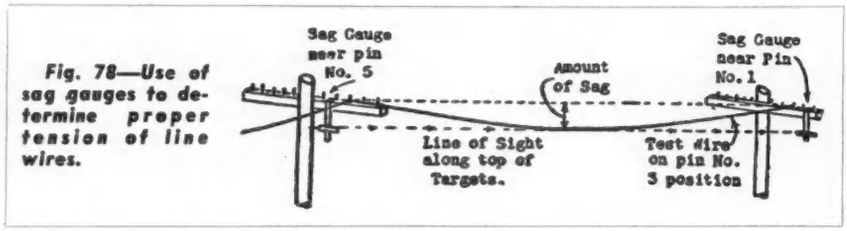


*Fig. 78—Use of sag gauges to determine proper tension of line wires.*

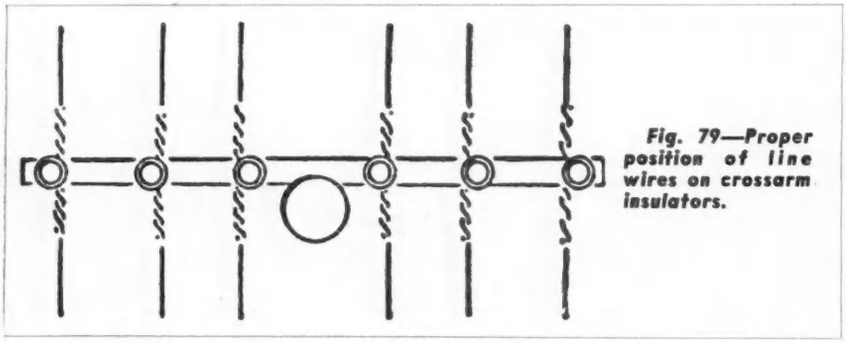

*Fig. 79—Proper position of line wires on crossarm insulators.*

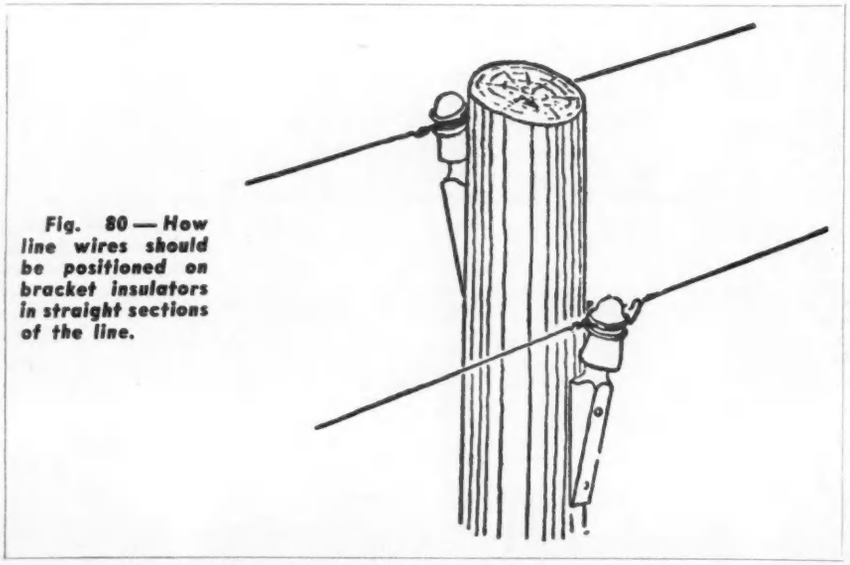

*Fig. 80 — How line wires should be positioned on bracket insulators in straight sections of the line.*

# Rebuilding The Rural

**Section IX of Mr. Reed's article discusses important features of the wire stringing operation. Part VIII of this article appeared in the August Fortnightly Telephone Engineer.**

THE WIRES ARE then reeled out in the direction opposite to the first section pulled in as indicated in *Figure* 74, raised onto the pole, pulled up, and snubbed or tied to end poles of the section. The wire ends of the two sections are then spliced together. The reel equipment is then moved to the section beyond the last half-mile section just completed and set up to resume the stringing operation in the additional sections.

### *Pulling Up Line Wires and Adjusting Wire Tension*

AFTER THE wires are raised to their position on the poles in each stringing section, they are pulled up and properly tensioned. Proper tensioning of the line wires is essential to prevent breakage of the wires in cold weather, if the wires are pulled up too tight or excessive slack causing swinging shorts in hot weather, if the wires are not pulled up tightly enough.

If a sufficient number of workers are available, the wires may be pulled up by man power. In this case as many men as there are wires in each bunch raised to the crossarms on the poles are assigned. Each man takes hold of one wire in the bunch and all pull at the same time. (If one wire were pulled at a time, the wires would become badly tangled.) The wires are pulled up tightly to prestretch them and then slacked off to the proper tension. This prestretching is very important as it sets the wire and minimizes the gradual slackening that occurs with the passage of time. It will not then be necessary to pull slack so soon as would otherwise be necessary.

# al Outside Plant

By John S. Reed

Lincoln Tel. & Tel. Co.
Lincoln, Neb.

If the number of men is insufficient for the pulling job, as many wires as considered convenient, according to the number of wires in each bunch (usually four), may be attached to the rear of the truck with slack blocks (or wire eveners). The truck can then be driven forward to take up most of the slack. The slack blocks are then utilized to pull the wires to the proper tension and to even them up.

When wire eveners are used, it is not necessary to employ slack blocks to even up the wires. In this case, the arrangement illustrated in *Figure* 76 is suggested.

At dead-end points the wires are attached to the crossarm by means of slack blocks. A short length of rope

***Fig. 77—Splicing together stringing sections.***

with a wire grip on each end may be employed for each pair of wires by looping the rope over two insulator pins (or over the pole in bracket leads) and seizing each wire with a grip. In splicing wires between pulling sections, each wire of a section may be attached to a corresponding wire of the other section by means of slack blocks and then the wire ends

(*Please turn to page* 42)

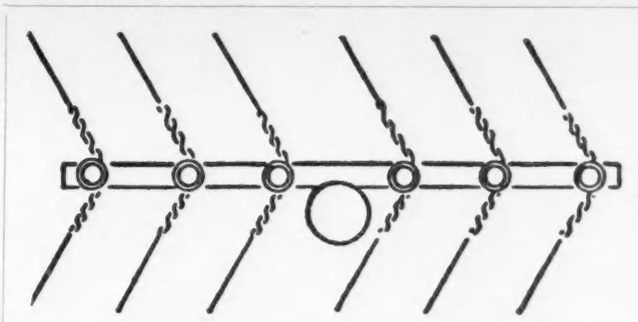

***Fig. 81 — Position of line wires on insulators on crossarm at angle in line.***

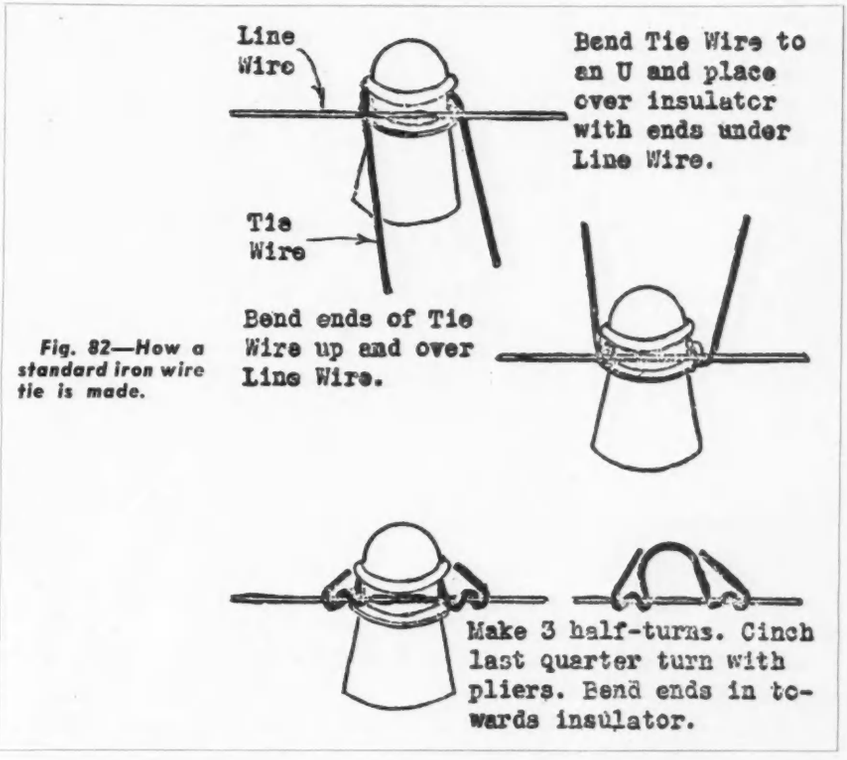
Line Wire
Bend Tie Wire to an U and place over insulator with ends under Line Wire.
Tie Wire
Bend ends of Tie Wire up and over Line Wire.
Make 3 half-turns. Cinch last quarter turn with pliers. Bend ends in towards insulator.

***Fig. 82—How a standard iron wire tie is made.***

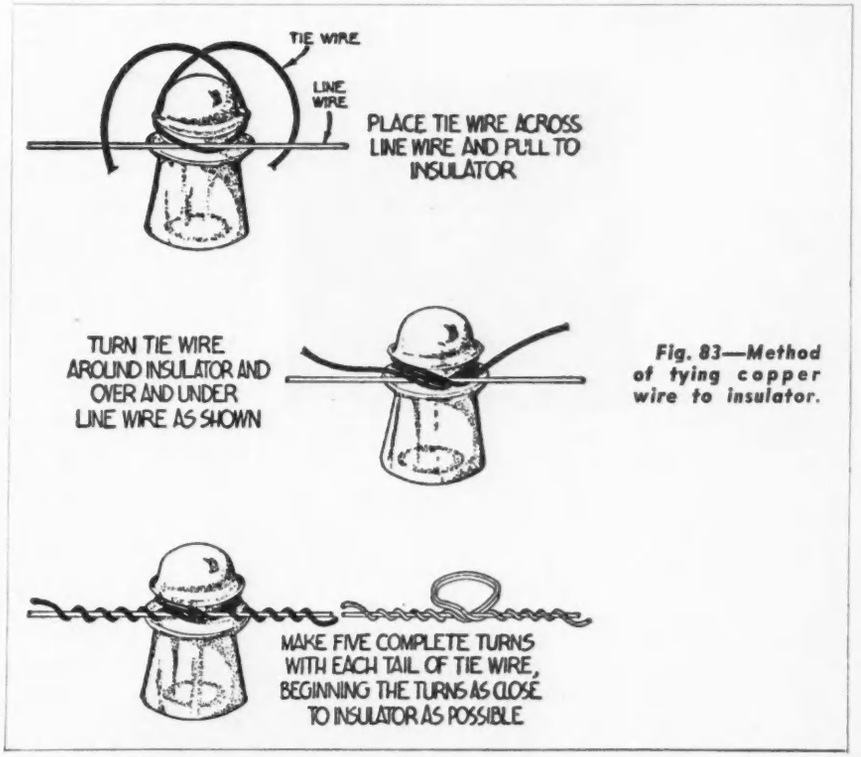
TIE WIRE
LINE WIRE
PLACE TIE WIRE ACROSS LINE WIRE AND PULL TO INSULATOR
TURN TIE WIRE AROUND INSULATOR AND OVER AND UNDER LINE WIRE AS SHOWN
MAKE FIVE COMPLETE TURNS WITH EACH TAIL OF TIE WIRE, BEGINNING THE TURNS AS CLOSE TO INSULATOR AS POSSIBLE

***Fig. 83—Method of tying copper wire to insulator.***

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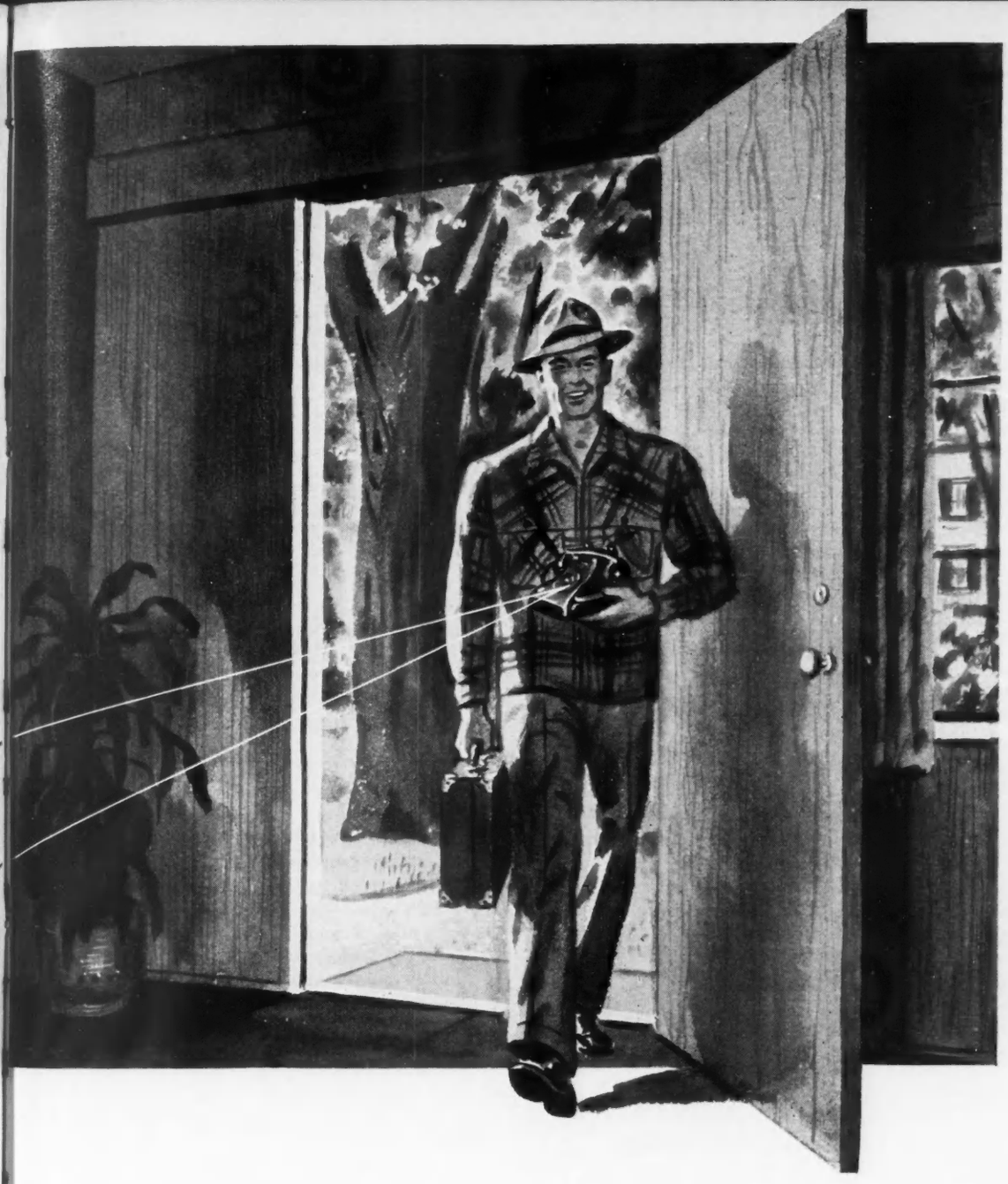

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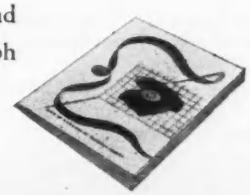

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drawn together with the tackle for splicing. See *Figure 77*.

The proper wire tension is obtained by slackening off the wires after they are pulled up initially, until the correct amount of sag is obtained by sighting with sag gauges as shown in *Figure* 78. The proper sag is obtained by reference to a table of wire sags for different air temperatures.

In measuring the wire sag, a wire span is selected as nearly equal to the length of the normal pole spacing of the line. This span should be several span lengths away from the pulling point. Refer to *Table No.* 12—Wire Sags for No. 12 BWG Steel Line Wire (HTL 85), for the correct sag. This sag is given in the column corresponding to the air temperature and the actual length of the sighting span. The sag gauges are then adjusted to the sag value.

In sighting with the gauges, they should be placed on the crossarms so that the line of sight crosses the wires at an angle instead of paralleling the wires. While sighting across the top of the targets on the gauges, the men should slack off the wires until the lowest point just touches the line of sight along the targets.

***Table 12*—Wire Sags for No. 12 B.W.G. Steel Line Wire (HTL 85) in Heavy Loading District.**

| No. of Poles Per Mile | Span Length in Feet | Wire Sag in Inches for Temperature in Degrees F. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | -10 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| | Section 1: | | | | | | | | | | | | |
| | Normal | 100 | 3 | 4 | 4 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 10 |
| 40 | Span | 110 | 4 | 4 | 4 | 5 | 5 | 6 | 7 | 7 | 8 | 9 | 10 | 12 |
| and | Lengths: | 120 | 5 | 5 | 5 | 6 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 |
| 36 | 132 Ft. | 130 | 5 | 6 | 6 | 7 | 7 | 9 | 9 | 10 | 12 | 13 | 14 | 16 |
| | and | 140 | 6 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 15 | 17 | 19 |
| | 146 Ft. | 150 | 7 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 15 | 17 | 19 | 22 |
| | Section 2: | | | | | | | | | | | | |
| | Normal | 150 | 7 | 8 | 9 | 9 | 10 | 11 | 12 | 13 | 15 | 16 | 17 | 19 |
| | Span | 160 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 18 | 20 | 21 |
| 30 | Length: | 170 | 10 | 10 | 11 | 12 | 13 | 14 | 16 | 17 | 19 | 21 | 22 | 24 |
| | | 180 | 11 | 11 | 12 | 13 | 15 | 16 | 18 | 19 | 21 | 23 | 25 | 27 |
| | 176 Ft. | 190 | 12 | 12 | 14 | 15 | 16 | 17 | 20 | 21 | 23 | 26 | 27 | 30 |
| | | 200 | 13 | 14 | 15 | 16 | 18 | 19 | 22 | 24 | 26 | 29 | 30 | 33 |
| | Section 3: | | | | | | | | | | | | |
| | Normal | 170 | 14 | 15 | 16 | 16 | 17 | 18 | 19 | 20 | 20 | 21 | 22 | 23 |
| | Span | 180 | 16 | 17 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | Length: | 170 | 10 | 10 | 11 | 12 | 13 | 14 | 16 | 17 | 19 | 21 | 22 | 24 |
| | | 200 | 20 | 20 | 21 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 31 | 32 |
| 25 | | 210 | 21 | 22 | 24 | 25 | 26 | 27 | 28 | 30 | 31 | 32 | 33 | 35 |
| | 210 Ft. | 220 | 23 | 25 | 26 | 27 | 29 | 30 | 31 | 33 | 34 | 35 | 37 | 38 |
| | | 230 | 25 | 27 | 28 | 30 | 31 | 33 | 34 | 36 | 38 | 39 | 40 | 42 |
| | | 240 | 28 | 29 | 31 | 32 | 34 | 36 | 37 | 39 | 42 | 43 | 44 | 46 |
| | | 250 | 30 | 32 | 33 | 35 | 37 | 39 | 40 | 42 | 44 | 46 | 48 | 49 |

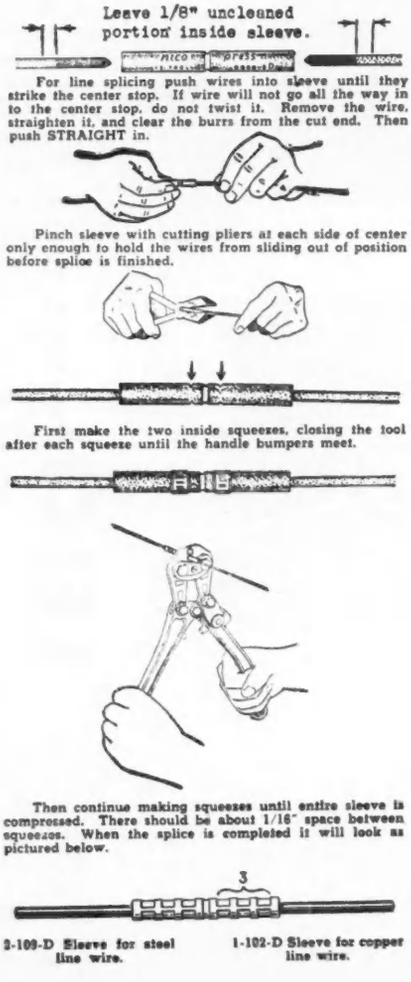
Leave 1/8" uncleaned portion inside sleeve.
For line splicing push wires into sleeve until they strike the center stop. If wire will not go all the way in to the center stop, do not twist it. Remove the wire, straighten it, and clear the burrs from the cut end. Then push STRAIGHT in.
Pinch sleeve with cutting pliers at each side of center only enough to hold the wires from sliding out of position before splice is finished.
First make the two inside squeezes, closing the tool after each squeeze until the handle bumpers meet.
Then continue making squeezes until entire sleeve is compressed. There should be about 1/16" space between squeezes. When the splice is completed it will look as pictured below.
3
3-109-D Sleeve for steel line wire.
1-102-D Sleeve for copper line wire.

***Fig. 84 (left)—Splicing line wire with compression sleeve.***

In bracket leads, a piece of lath may be nailed to each pole of the sighting span, at the proper distance from the location of the wire on the lower insulator equal to the sag desired. The lower wire in the span may then be slacked off until its lowest point touches the line of sight from one lath to the other. The sag of the upper wire may then be adjusted to equal the sag of the lower wire.

Instead of measuring the wire sag to determine the proper tension of the wires, a dynamometer may be utilized to ascertain the tension directly with more accurate results. The dynamometer is inserted between the wire eveners and the truck, and the wires are pulled up and then slacked off until the proper stringing tension is indicated. The total tension for the load is equal to the required tension for the wire multiplied by the number of wires.

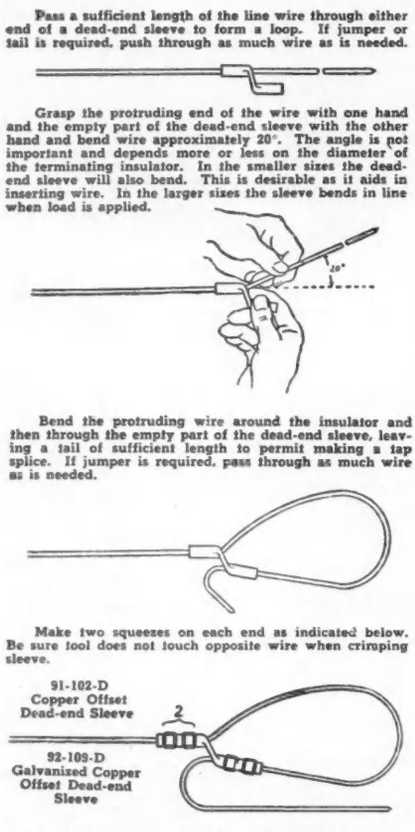
Pass a sufficient length of the line wire through either end of a dead-end sleeve to form a loop. If jumper or tail is required, push through as much wire as is needed.
Grasp the protruding end of the wire with one hand and the empty part of the dead-end sleeve with the other hand and bend wire approximately 20°. The angle is not important and depends more or less on the diameter of the terminating insulator. In the smaller sizes the dead-end sleeve will also bend. This is desirable as it aids in inserting wire. In the larger sizes the sleeve bends in line when load is applied.
20°
Bend the protruding wire around the insulator and then through the empty part of the dead-end sleeve, leaving a tail of sufficient length to permit making a tap splice. If jumper is required, pass through as much wire as is needed.
Make two squeezes on each end as indicated below. Be sure tool does not touch opposite wire when crimping sleeve.
91-102-D Copper Offset Dead-end Sleeve
2
92-109-D Galvanized Copper Offset Dead-end Sleeve

***Fig. 85 (above)—Using an offset compression sleeve to terminate line wire on an insulator.***

## *Tying Line Wires To The Insulators*

AS SOON AS the wires have been properly tensioned, they should be tied in and the wires between the stringing sections spliced together.

The proper positions of the wires on the insulators are illustrated in *Figures* 79 and 80. A general rule to follow in locating the wires is to place them on the inside of the insulators as shown except at angles in the line and at transposition points where they are always placed to pull against the insulators so that the strain will be on the insulators, not on the tie wires. In the case of pole pair insulators on crossarms, the wires are

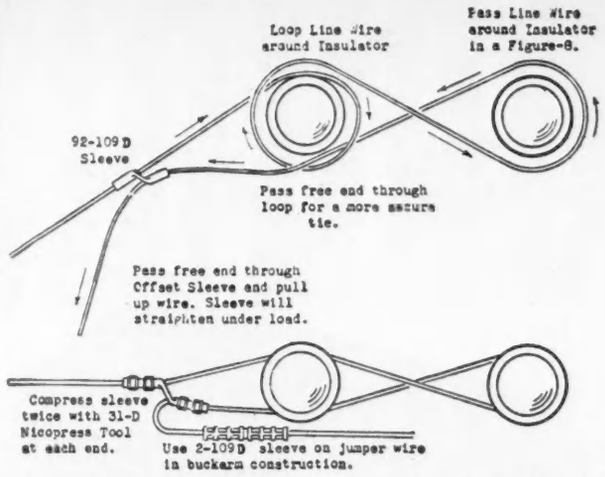
Loop Line Wire around Insulator
Pass Line Wire around Insulator in a Figure-8.
92-109D Sleeve
Pass free end through loop for a more secure tie.
Pass free end through Offset Sleeve and pull up wire. Sleeve will straighten under load.
Compress sleeve twice with 31-D Nicopress Tool at each end.
Use 2-109D sleeve on jumper wire in buckarm construction.

*Fig. 86—Terminating line wire on two insulators in double arm or buckarm construction.*

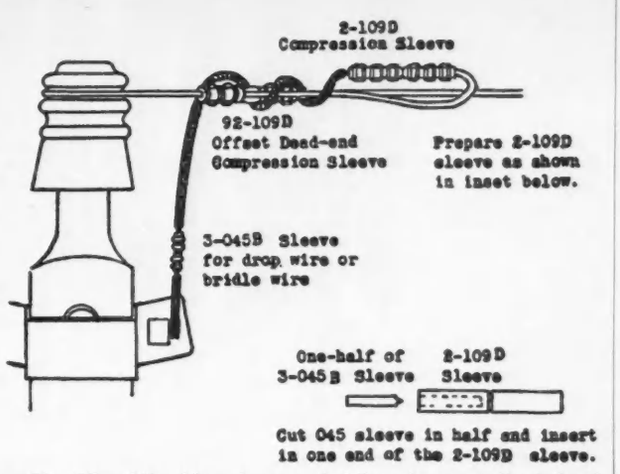
2-109D Compression Sleeve
92-109D Offset Dead-end Compression Sleeve
Prepare 2-109D sleeve as shown in inset below.
3-045B Sleeve for drop wire or bridle wire
One-half of 3-045B Sleeve
2-109D Sleeve
Cut 045 sleeve in half and insert in one end of the 2-109D sleeve.

*Fig. 87—Attaching drop or bridle wire to tail of dead ended line wire.*

located on the outside of the insulators to provide additional climbing space between the wires at the pole, unless the wires pull off at an angle, in which case the wires are placed to pull against the insulators as shown in *Figure* 81.

*Figure* 82 illustrates a standard method of making iron wire ties suitable for wire spans of normal lengths of 210 feet or less. (Longer spans require special wire ties or ties with splints to prevent breaking of the wires at the insulators as the result of excessive span vibration.) For copper or copperweld wire spans, the tying method shown in *Figure* 83 is satisfactory for medium spans (around 150 feet). For steel line wire, 12-inch lengths of No. 12 BWG (109 B.B.) galvanized iron wire ties are used, while 24-inch lengths of No. 12 NBS (104) annealed copper wire ties are required for copper or copperweld wire.

### *Splicing Line Wire And Making Line Terminations*

PROPERLY MADE splices in line wires are essential to prevent noise and cutouts. One of the most difficult case of trouble to locate is one due to a splice going bad, particularly if the fault is of the intermittent type. A hand made splice rarely fails to become noisy in time, while a twisted sleeve (double tube) joint may go bad. On the other hand, compression of pressed sleeves and rolled sleeves are practically trouble proof when properly made and should be used in all cases. The method of making a typical compression sleeve splice is illustrated in *Figure* 84.

At dead end and branch off points, the line wires are terminated in a number of ways as outlined below:

To terminate a line wire on an insulator, use an offset dead end sleeve rather than make a twisted wire dead end, as high strength or copper line wire has a tendency to break when twisted. The procedure illustrated in *Figure* 85 is well suited for terminating line wire in bracket leads or spurs, or on spool insulators at dead ends or buckarm corners in crossarm leads. If the wires terminate on two in-

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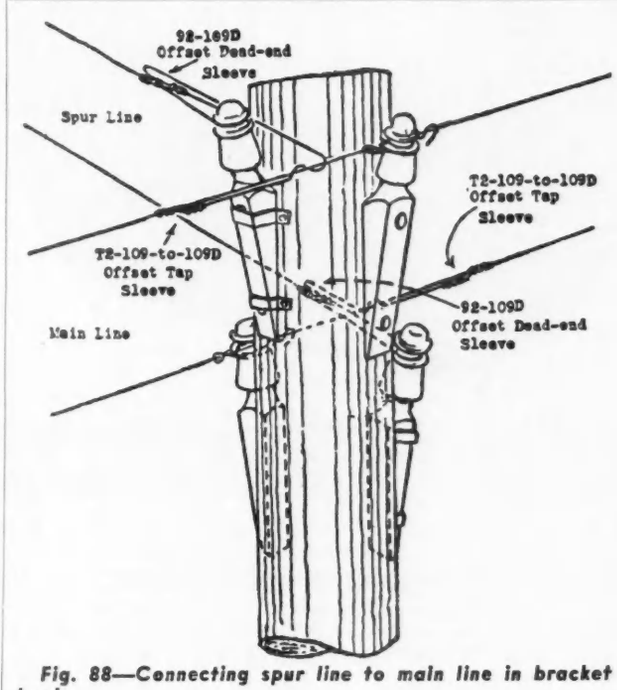


*Fig. 88—Connecting spur line to main line in bracket leads.*

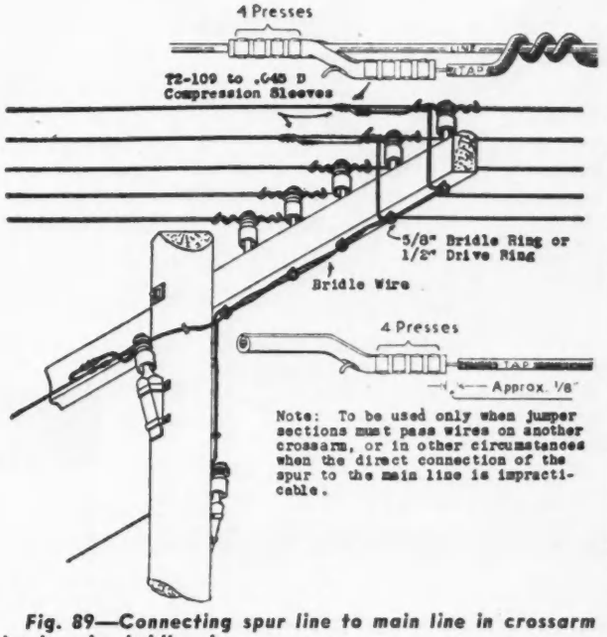
4 Presses
T2-109 to .045 B Compression Sleeves
5/8" Bridle Ring or 1/2" Drive Ring
Bridle Wire
4 Presses
Approx. 1/8"
Note: To be used only when jumper sections must pass wires on another crossarm, or in other circumstances when the direct connection of the spur to the main line is impracticable.

*Fig. 89—Connecting spur line to main line in crossarm leads, using bridle wire.*

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Once you install Monophones you'll know why so many Independent telephone companies always use Monophones. MONOPHONES GIVE YOU MORE of the features you need!

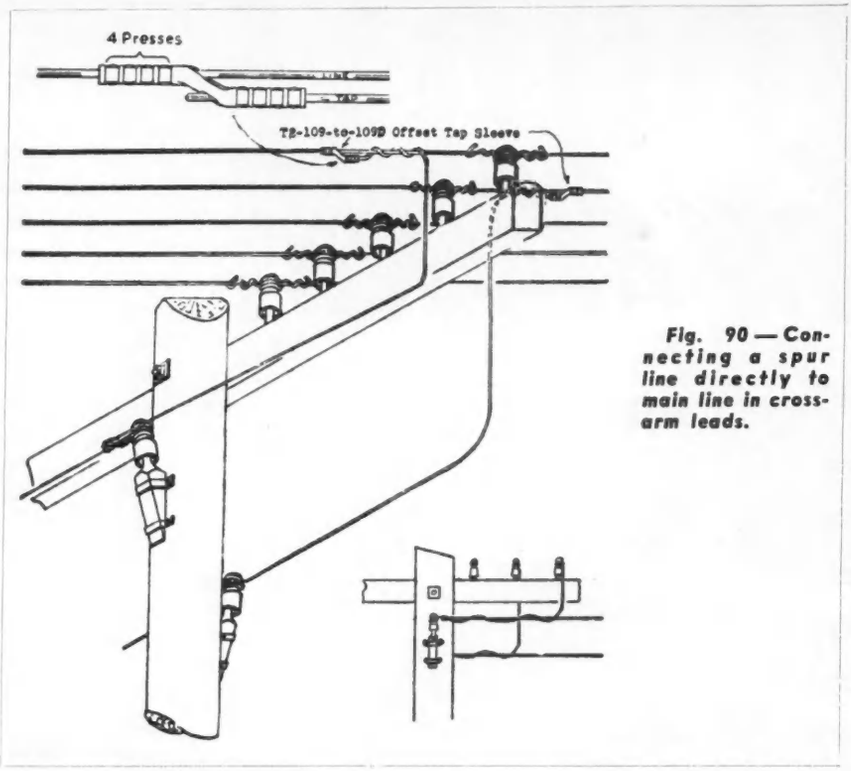


*Fig. 90 — Connecting a spur line directly to main line in crossarm leads.*

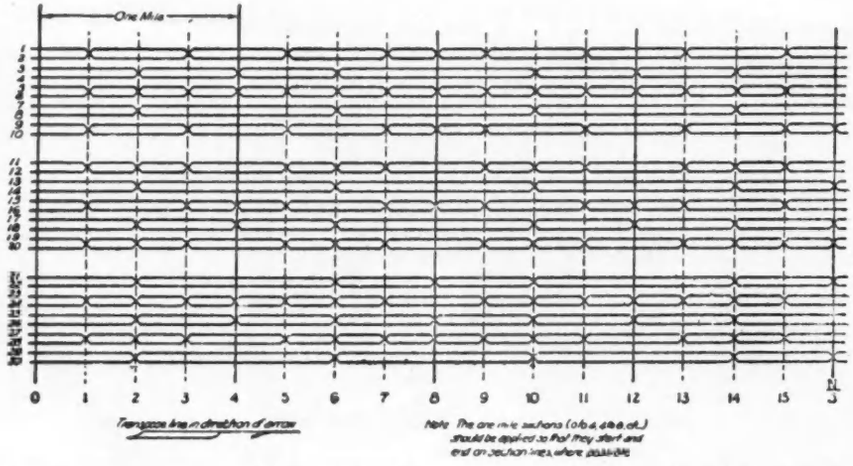


*Fig. 91—N transposition scheme for rural open-wire leads (Maximum length of each transposition section is 4 miles.)*

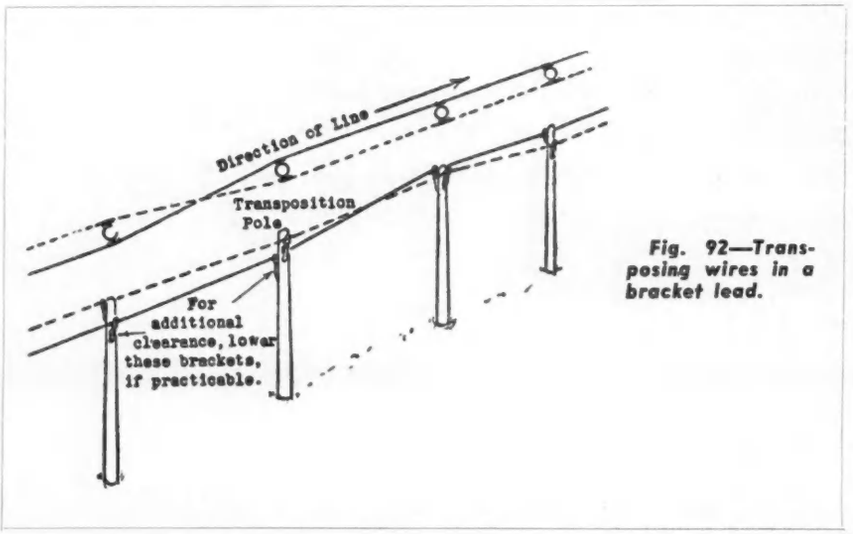


*Fig. 92—Transposing wires in a bracket lead.*

sulators on double arms or buckarms, the method of dead ending the wires shown in *Figure* 86 is recommended. When it is desired to connect drop or bridle wire to the tail of a dead ended wire, the insulated wire may be connected as shown in *Figure* 87.

To connect a spur line to a main line that is carried on brackets, the procedure illustrated in *Figure* 88 is suggested. Spur lines from a main crossarm lead may be terminated by either of two methods shown in *Figures* 89 and 90. In these procedures, tap compression sleeves are employed, the tap sleeve being connected first to the bridle wire or the spur wire (inset in *Figure* 89). The grooved end of the sleeve is then placed over the main conductor and crimped in place with the crimping tool. Connecting the wires in this order assures a permanently tight connection. It is recommended that the tap sleeves be taped over with friction tape where conditions of frequent high humidity or salt spray are encountered.

No telephone line should ever be built without transposing the line conductors in accordance with a standard transposition scheme. Transpositions are required in crossarm leads to minimize crosstalk and noise induction. Even a two wire lead should be transposed in order to prevent or at least reduce inductive pick up from paralleling power lines.

There are a number of standard transposition schemes in use. One that gives reasonably satisfactory results for open-wire leads, when the inductive interference from an adjacent power line is not too severe, is illustrated in *Figure* 91. This arrangement is known as the "N" Section transposition scheme. Another and more effective scheme is the "R" scheme which requires the use of special insulators on tandem brackets to achieve a "point" transposition at every other pole. When the "N" scheme is employed, the transposition arrangement shown is repeated every four miles of the line length. If the remaining portion of the line is less than four miles, the transposition is terminated at the first, second, or third mile section nearest the end of the line. In addition, junction points and terminations of each line are located at the mile points in the scheme wherever practicable in order to keep the lines balanced.

Transposition of wires in a bracket lead is accomplished in the manner shown in *Figure* 92, using the transposition scheme illustrated for the first pair of wires in *Figure* 91.—*To be continued in the September* FORTNIGHTLY TELEPHONE ENGINEER.

# SMALL COMPANY TALK

By
BILL CORMAN

**"THE TWO words 'expense' and 'expenditure' are often used interchangeably, which is a mistake that leads to confusion and loose thinking . . ."**

BACK IN MY college days, one of our most cherished institutions was what we called by the not at all inaccurate name of "*Bull Sessions*". These talkathons included from two to a dozen young men, and lasted as long as anyone had a new idea or an old idea with a new twist. They were probably, and this is meant seriously, as valuable to me as any one activity in which I engaged at the time. The amount of thought, originality, and information bandied about at these sessions was nothing short of amazing, and the amount of useful education I received from my participation in them was, and still is, equally amazing to me.

For example, one of the things I learned early was, that when an argument started developing, the first thing to do was define accurately and explicitly the *words* about which the argument hinged. Not only do words differ in their connotation from person to person, depending on his education, background, etc., but they differ from area to area, and from time to time. The word "atomic", for example, connoted to me in my high school days something vaguely connected with the fact that when a blue litmus paper was placed in acid, it turned pink; but my connotation now includes such varied subjects as Truman, Russia, New Mexico, Canada, Destruction of civilization, Hiroshima, the letters "A" and "H", etc—which is a far cry from Litmus paper.

The area-to-area differences in words was called again to my attention by my English landlady during World War II. One afternoon I came home from the army camp to find her rummaging through the pantry. Answering my question, she said she was looking for "paraffine to kill some ants".

"That's a new one on me," I told her, "I never heard of using paraffine."

She mentally put it down to another peculiar American lack of knowledge, and said, "I've used it for years—it does a good job."

"How in the world do you use it?"

She looked at me strangely. "You just pour it on them and it kills them."

I could readily imagine that it would. "Then you melt it first?" I asked.

Again that look. "No, you just use it cold, right out of the tin."

I knew I was in beyond my depth, and silently started to leave.

"Good! Here it is," I heard her say. I turned around and saw a pint jar in her hand about half full of some liquid. I went over and smelled it.

"Kerosene!" I told her.

"No. Paraffine."

And there I had another illustration that there is no use arguing if the words don't mean the same thing to both parties. And which, also, gets us to what I wanted to talk about this time—the simple difference of meaning which *should*, but many times is not, be realized between two words in fairly wide use as concerns the accounting or financial segment of a business. The two words are "Expense" and "Expenditure". These two words are often used interchangably, which is a mistake that leads to all sorts of loose and erroneous thinking. "Expenditure", according to Webster is "a laying out of money—a disbursement". Notice that it is a general term, there are no conditions, restrictions or limitations—it is *any* laying out of money, *any* disbursement.

"Expense," on the other hand, and still according to Webster, is the noun resulting from the verb "expend" and expend is defined to mean "consume by use in any way". Thus an expense could be defined as—a disbursement which is consumed by use in any way. An "expense" is an expenditure, but in a sense limited by the fact that the expenditure must be consumed by use. "Expense" is therefore a specific word.

This distinction between the generality of the word "expenditure" and the specificity of the word "expense" is important. In other words all expenses are expenditures, but all expenditures are not expenses.

(*Please turn to page* 50)

# A PRODUCT IS JUDGED BY T
# QUALITY OF ITS DISTRIBUTO

*"Just as a person is judged by the company he keeps"*

THIS old time worn cliche offers irrefutable proof that association proves endorsement.

We feel therefore that our list of distributors developed over these many years of successful business operation presents an endorsement of product quality, customer service and sound engineering.

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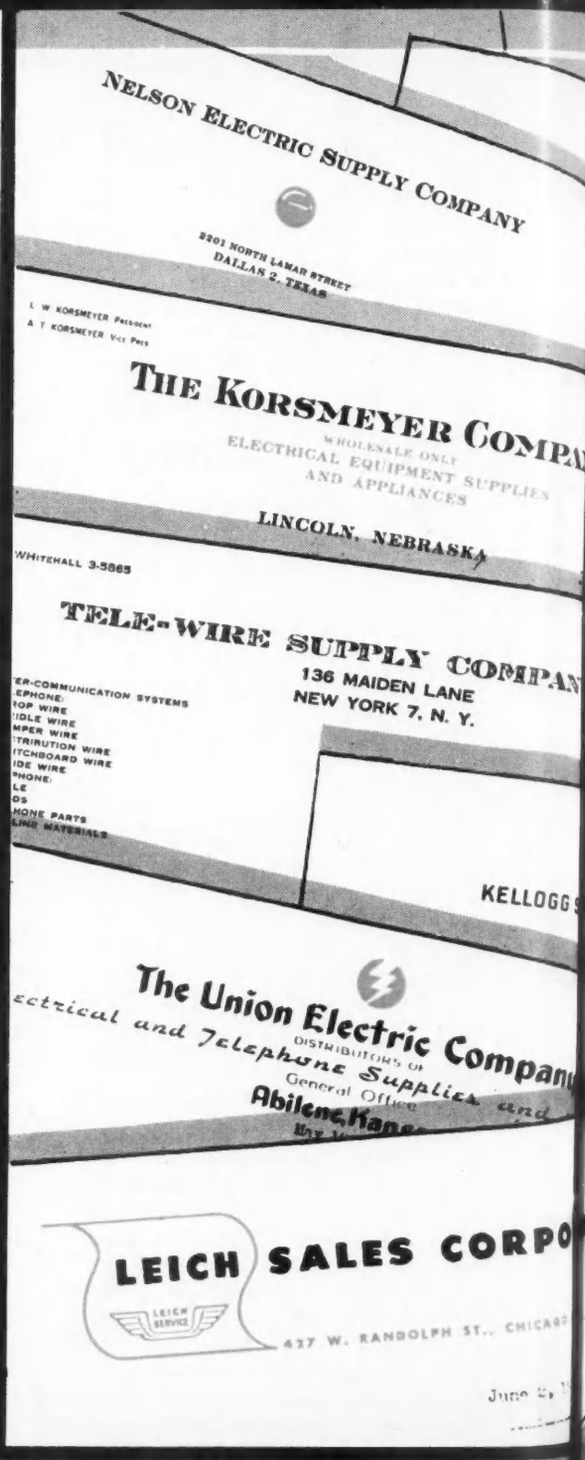

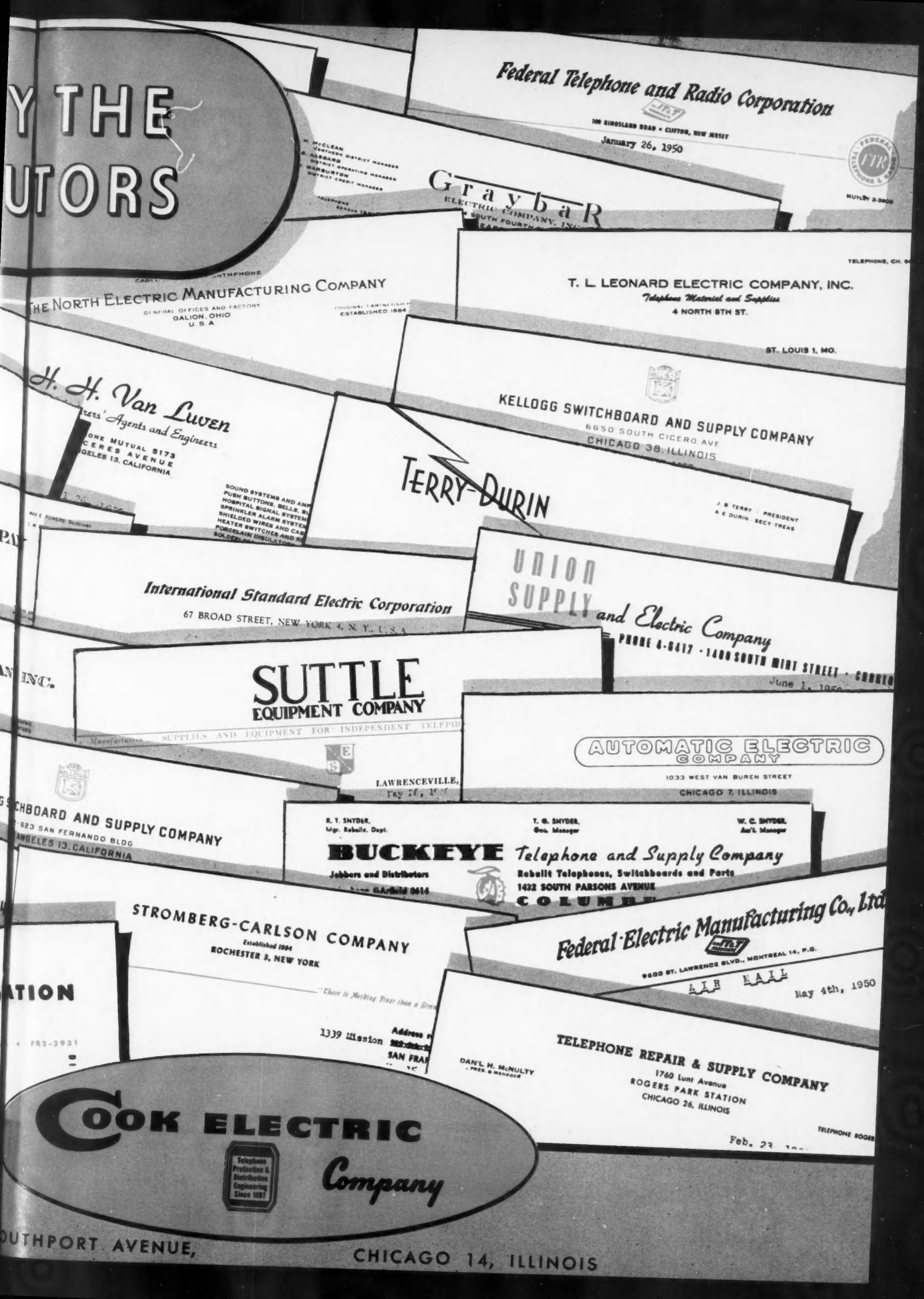
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Applied to telephone accounting, this means that all outlays of money are not "expense" even though they are "expenditures". Expense, in telephone accounting, is generally taken to mean the cost of doing business during a certain period, which, subtracted from the income for the same period, leaves the amount called profit or loss. Thus again, all expenditures of that same period may not be expense, and should not be used in computing the net profit or loss.

That phrase "during a certain period" should not be overlooked. For while an expenditure of this period may not be an expense of this period, it may be an expense of the preceeding period or periods or of the succeeding period or periods, or it may never be an expense.

We may generalize by saying that all expenditures fall into one of two catagories: expenses or investments. An example of expense is the salary paid to an operator. An example of an investment is the purchase of land. Under the two main heads of expense and investment, there are many subdivisions, and these sub-divisions approach each other so closely that it is oftentimes impossible, on the basis of simple reason, to tell which is which. But in general the distinction is not hard, and is of real importance in the proper conduct of a business.

Furthermore, there is an easy guide, available to everybody. The FCC telephone accounting instructions tell exactly in considerable detail which is which, and what to do about them.

The point I desire to make is that the important thing is to make the distinction. Once made, the mechanics of following through on it, are easy—but the idea must be ingrained.

The salary of the manager of a small telephone company, for example, may not all be expense. If he spends time engineering, supervising, and helping on the construction of new plant, then part of his salary is investment, and not expense.

The salary of a combination man may not all be expense. If he spends time installing telephones, then part of his salary is chargeable to investment.

The gasoline you buy for your truck may not all be expense. If that truck is used half the time for construction, then half of the money spent keeping the truck going should be charged to investment.

A shipment of drop wire, on the other hand may not all be investment. If half of the shipment is used to replace worn out drops, then half of the cost of the wire should be charged to expense.

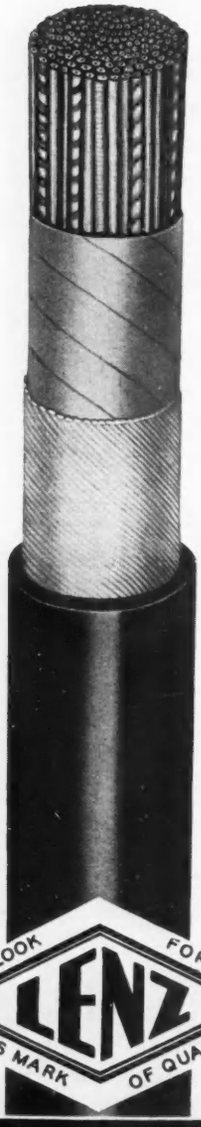
Endless other examples could be cited. There is hardly any expenditure in a telephone company that can be said to be all investment or all expense, *all* the time. Even taxes are not always expense, though mostly, of course, they are. Sales taxes, for example, are universally accepted as being part of the cost to the buyer. If a telephone company buys a pole for addition to plant for, say, $10.00, and there is a 2% sales tax ($.20), then the proper charge to investment would be $10.20.

It was mentioned that, once the idea of dividing expenditures between expense and investment is accepted and understood, the mechanics are relatively easy. In small companies, this is so to a large degree, but the mechanics become more and more complicated as the size of the company increases, just as do most other jobs.

In the average small company, there are two basic ways of getting the proper charges into expense and into investment. The first way is to make the division at the time the bill is paid—that is, at the time a material invoice is paid, or when a salary

(*Please turn to page* 74)


**5 REASONS WHY YOU SHOULD USE THIS NEW LENZ PLASTIC JACKETED CABLE**



1 Jacket assures longer life — extreme toughness with maximum flexibility.

2 Highly resistant to abrasion, moisture, acids and cleaning fluids.

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4 Jacket strips easily and cleanly.

5 Offers greatest possible economy in all types of service.

Individual conductors can be furnished with plastic cotton serve or all textile insulation.

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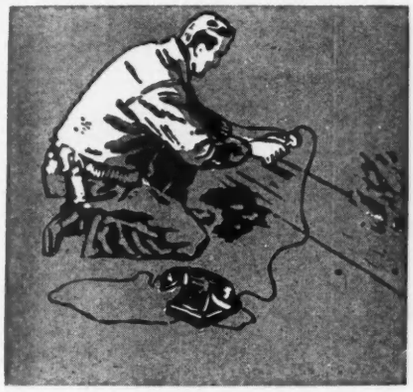


# QUESTIONS and ANSWERS

*By Jay G. Mitchell*

**In this issue Mr. Mitchell answers questions on—Sectionalizing Inductive Interference. . .**

*Question: We operate a magneto telephone system. We run a single line and telephone is noisy (roars). Our line runs underneath and parallel to a high line about 300 yards. Would two lines run this distance eliminate this noise or would we have to run two lines the full seven miles to the switchboard? Please tell me how to construct two lines to eliminate this trouble. Thanks for this information, stamped and directed envelope is enclosed for your use.*

Answer: If the disturbing high tension circuit is not operating at a higher voltage than 6,000 and is no nearer to your wire than six feet at its closest point and if your line is exposed to interference in this one location only it would probably be sufficient to string twisted insulated pair wire in the parallel extending the pair wire about 100 feet beyond the ends of the parallel, completing the telephone circuit by the installation of repeating coils as shown schematically in the sketch. It should be emphasized, however, that the noise on your line may be due partly to some other similar exposure or to some other condition that would also have to be corrected.

If the high tension circuit is operating at an extremely high voltage it may be necessary also to move your telephone line away from it at the parallel so that the separation is at least equal to the width of the highway.

Repeating coils suitable for this purpose can be purchased from any manufacturer of telephone equipment but when placing your order for them it will be very necessary to specify the purpose for which they are to be used so that you may be assured of receiving the correct type.

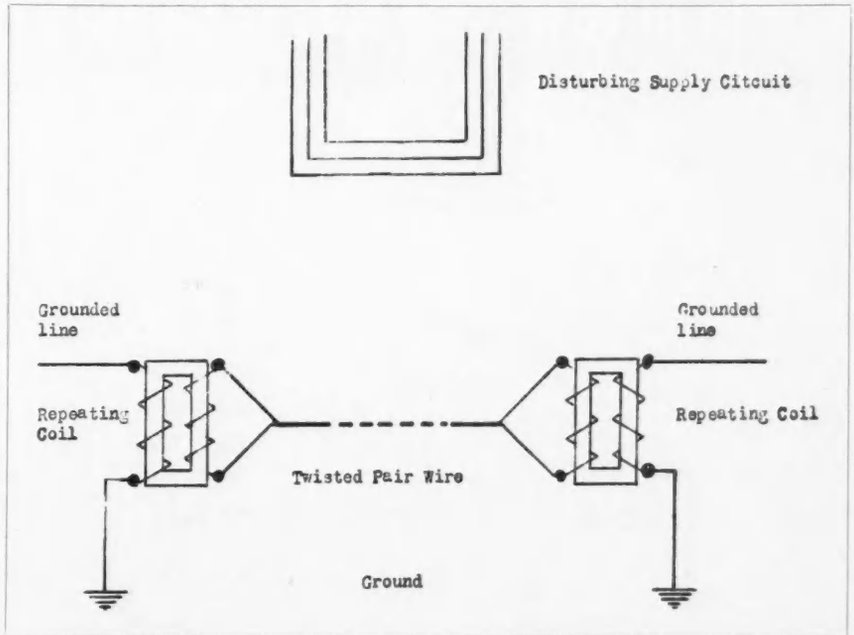
A good ground connection will be required, of course, at each repeating coil and a suitable protector should also be installed together with protection for the coil and the protector from damage due to the elements. It is my suggestion also that you patrol the entire telephone circuit in order that tree leakage or high resistance crosses with the supply circuit drops may be cleared if found.

Please write in again if it appears that I can be of any further help in the solution of your problem. Should you plan to build any new telephone circuits, under present conditions, it is suggested that they be made metallic in the beginning throughout their entire length.

*Question: We have a telephone line running between two power lines, one R.E.A. and the other K.C. Power and Light Company; this line and the two power company's lines run about one mile in a parallel but the total length of our single wire line is eight or nine miles. Can you tell us if there is any possible way to get through these two electric lines and not have to run two wires the entire length of our telephone line? It is almost impossible to talk now with the telephone line between these two electric lines under existing conditions (such a roar).*

Answer: This is another case of a grounded telephone circuit which is apparently rendered unsatisfactory by conditions due to a one mile parallel with two supply circuits although the telephone line itself is eight or nine miles in length. No information is given as to the voltage of the supply circuits, their configuration or the separation between each of them and the disturbed telephone circuit. Without these data it is possible to give only a very general answer to the inquiry. For very high voltages the supply circuit wires should be separated from the telephone circuit by at least highway width regardless of the measures taken to modify the telephone circuit. If the supply volt-

(*Please turn to page* 54)



# Up little in cost...Up lots in value!

While wages and family incomes have about doubled since 1939 the cost of telephone service has increased only modestly. As a result, the average family pays a smaller portion of its income for telephone service today than it did ten years ago.

The advertisement on the opposite page sums up this simple arithmetic of the telephone business. Appearing in national magazines during August, it also points out how the value of the telephone has gone up.

An advertisement of the
BELL TELEPHONE SYSTEM

# BIGGER BARGAIN

## The telephone takes a smaller part of the family budget than in 1939...

One of the attractive and remarkable things about telephone service is its low price.

It actually takes a smaller part of the family budget than it did ten or eleven years ago. That's because the average family income has increased much more than the increase in telephone rates. Even though increases in telephone rates are still needed to catch up with past increases in costs, your telephone will continue to be a big bargain. The increases so far, plus those now requested, average only a penny or so per call.

At the same time, there has been a big increase in the value of the telephone. On the average, you can now call more than twice as many telephones in your local area as in 1939.

BELL TELEPHONE SYSTEM

age is not extremely high (6,000 volts or less) and if the separation between the supply circuit wires and the telephone wires can be maintained throughout at six feet or more; it will probably make an improvement in the telephone transmission to make the telephone circuit metallic throughout the parallel and 100 feet more at each end of the parallel and carefully transpose it. A repeating coil will, of course, be needed at each end of the metallic segment to effect a connection with the single wire portions of the circuit.

It is also my suggestion that the entire telephone line be carefully patrolled and that especial care be taken to detect and eliminate any cases of leakage through trees or high resistance crosses between any telephone wire and the supply drops and guys on the road or on subscriber's premises. Especial attention should be paid in this inspection to dead drops which have been allowed to remain in place.

If it appears that I can be of further help please write again.

*Question: Our company is just starting to change over the exchange here where I work to a dial service. At the present time we operate the rural lines on magneto service, both divided and bridged ringing.*

*My problem is this—on our rural lines (magneto) we use a West Test Set which has a "bug" to tell which direction a short on the line is. Now when we put common battery on the line—our tone will just indicate toward the office. What method for clearing shorts quickly should be used? One "Old Hand" told me to remove fuses at the line terminal first and then shoot trouble in the usual way as on a magneto line, but that doesn't sound good to me, because I most generally have trouble cases scattered over a wide area, and to use the above method would mean considerable back tracking to the terminal before going on to the next case of trouble. Isn't there an easier way?*

*Another "Old Hand" says that he just goes down the road and disconnects one station at a time until the line is clear. That doesn't sound so good to me because of so much time wasted in disconnecting the wrong telephones first.*

Answer: This inquiry would call for a discussion of testing methods in general if answered fully. Such an answer is beyond the scope of the *QUESTION AND ANSWER* column however and it is recommended that the matter be referred to the manufacturer of the new equipment which is being put into service in this office. It appears that the rural lines are to be operated as common battery circuits and if that is the case some sort of testing equipment in which the ohmmeter principle is used should be installed at the telephone office. If the line circuit which is in trouble is opened at the main distributing frame, assuming that the trouble is certainly not in the central office, the West Test Set should give a rough indication of the direction from any testing point in which the trouble (short circuit) lies. However the best method is to use conventional testing methods with a "Wheatstone" bridge with circuit adaptations for the Varley and Murray Loop Tests incorporated in the set. I suggest that you provide yourself with a book in which the subject of line testing is discussed as efficient testing equipment when skillfully used will save you a great deal of time.

Please write in again if you wish any further suggestions and if you do please give all information as to your equipment and plant that is pertinent to the location of line trouble.

WAS-WAS FORT WAYNE CLASSIFIED BUSINESS DIRECTORY 214
Washing Machines-(Cont'd)
BLOOMINGTON & NORMAL CLASSIFIED TELEPHONE DIRECTORY
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## INVEST YOUR "PIN MONEY" IN THE BEST

### LOCUST PINS

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### OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

### GLASS INSULATORS

Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deterioratating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

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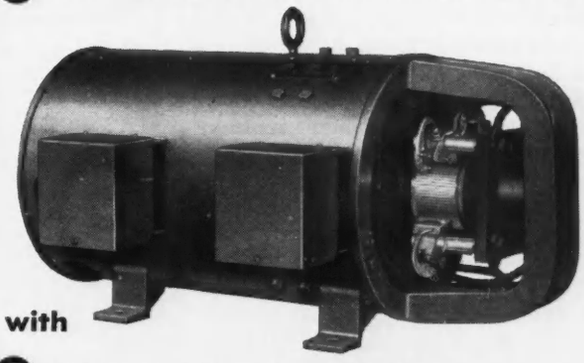
## FOR *Time-Proved* BATTERY-CHARGING PERFORMANCE

*Specify*

**1 E. P. Diverter-Pole Motor-Generators**



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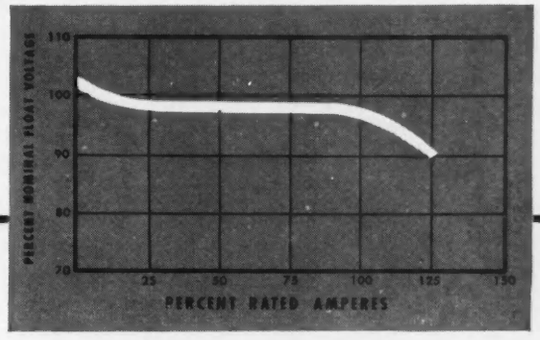
**2 Inherent Constant Voltage . . .**




***Constant voltage delivered by E. P. Diverter-Pole Motor-Generators serves three important functions:***

**A—DECREASES RELAY MAINTENANCE.** Keeping the voltage from rising too high helps to prevent "slapping" of the contacts that may result in misalignment, pitting and burning, and preserves the sensitive adjustment of the relays. High-coil current . . . with accompanying insulation breakdown, shorting and burning-out . . . is avoided.

**B—INCREASES BATTERY LIFE.** Operating records of many exchanges show that the E.P. Diverter-Pole Battery Charger increases battery life from six to fourteen years. High battery temperature, excessive gassing, and undue breaking down of the active cell material are prevented to assure the longest possible battery life.

**C—IMPROVES VOICE TRANSMISSION.** To assure satisfactory voice transmission, the Battery Charger must maintain the output voltage of the battery as close as possible to a constant value. Transmitters may become noisy if they are subjected to an excessively high voltage, and may have to be replaced because of permanent damage.

***Write for Bulletin 209***

**EP**

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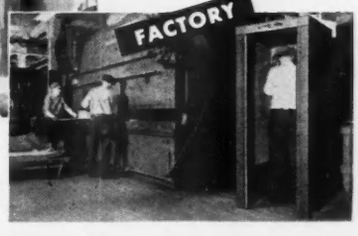


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# Washington-Oregon Groups Hold Convention

By Charles N. Tyson

Advertising Director,
Interstate Telephone Co.

THE INTERSTATE Telephone Co. and its representatives acted as host to over 400 persons during the joint convention of the Washington and Oregon Independent Telephone Associations which was held at the Davenport Hotel in Spokane, Washington, on June 9 and 10, 1950.

The splendid program was arranged by J. W. Baker, secretary-treasurer of the Washington Independent Telephone Association, and L. A. Gritten, Secretary-treasurer of the Oregon Independent Telephone Association. Many prominent speakers addressed the convention on matters of great importance to the telephone industry.

I. F. Krehbiel, president and general manager of Interstate, gave the welcoming address, and Stanley Witter, recreation director of the City of Spokane, in the absence of Mayor Arthur Mahan, responded.

Owen Clarke, chairman of the Washington Department of Public Service, was the first speaker on the agenda. Mr. Clarke said, "For several years now, whenever the opportunity presented itself, I have bitterly denounced bureaucracy. So last year when I went to Olympia as Chairman of the Public Service Commission, it was rather a rude shock to suddenly discover that I, too, had become a bureaucrat. By careful analysis, however, I have come to the realization that there are two types of bureaucracy. On the one hand, we have a multitude of government bureaus apparently based upon false philosophy that there is some socialistic highway to the promised land of prosperity.

"On the other hand, we have certain Federal and State agencies, bureaus if you please, whose prime objective is to foster and preserve our great productive system of free enterprise.

"The Washington Public Service Commission is dedicated to the principle that sound, sensible, and equitable government regulation of certain industries affected with a public interest is the greatest bulwark we have against government ownership of those industries . . . therefore, we consider it to be as much our task as yours to see that the telephone industry continues as private enterprise.

"Government ownership of telephones could well be an opening wedge leading to socialism or a more dictatorial form of government . . . as I think we all know that throughout the world government ownership of communications has been the cornerstone of every socialistic state.

"If (the telephone companies and) we in the field of regulation fail to provide adequate telephone service at reasonable rates, we will encourage government ownership and the ultimate destruction of our system of private ownership under regulation.

"I think you will agree with me that for some reason many telephone subscribers have developed an unrealistic attitude toward telephone rates and telephone service. They do not accept the theory that there is a direct relationship between cost and service and that economic conditions which affect the cost of production of other commodities, also affect the cost of production of telephone service service.

"Many who demand and are willing to pay for the finest home, automobile, farm machinery, or household appliances are willing to struggle along with a horse-and-buggy telephone company. Some appear to expect a regulated utility to operate in defiance of economic conditions, and many have not learned that poor telephone service follows inadequate rates. The public cannot expect limousine service on a wheelbarrow income.

"The telephone industry generally, and the small companies particularly, have apparently failed to sell many of their customers on the value of their product. There has been a failure to recognize the value of good will as a major asset.

"I believe this is one of your greatest problems. But it is the sort of problem which might well be solved through the joint efforts of an organization such as this (the Independent Telephone Associations). I hope, therefore, that the matter of customer education, of public relations, will be made the subject of discussion at one of your future meetings. . . ."

Next speaker on the program was Harold V. Bozell, president of General Telephone Corporation of New York, and also president of the United States Independent Telephone Association. Mr. Bozell gave an interesting and informative talk on "*The National Scene*" as it effects our industry.

J. T. Naylor, vice president and manager of the Sunland-Tujunga Telephone Co., Sunland, Calif., talked on "*Pacific-Independent Relations*". With regard to toll settlements, Mr. Naylor stated that "Between the years 1938 and 1948 Independent toll revenues per station served more than doubled, increasing 115 percent, from $8.45 per station to $18.21 per station nation-wide; this compares with a 9.25 percent increase in exchange revenues expressed on a per-station basis. Nationwide Bell System operations disclose that in the same 10-year period toll revenues per station increased 70 percent, from $15.50 to $26.40; their exchange revenue per station increased about 10 percent. Despite the comparatively improved status of the Independent telephone industry at the present time in regard to its participation in toll revenues there appears to be no immediate prospect of achieving full maturity in toll settlements or of reaching the point where we can sit back and say

***At the breakfast for the Northwest Independent Telephone Pioneer's Association, A. T. West, Seattle, one of the founders of the Washington Independent Telephone Association, presides. To his right is another well-known telephone man—J. W. Baker, who for many years has made each convention an outstanding one. To Mr. West's left are Mrs. Wade Dean and Wade Dean of the Oregon-Washington Telephone Company; D. O. Hood, of Medford, Oregon, and J. E. Kreiger, of Everett.***

this is it. To the contrary, the mechanization of toll handling and the expansion of extended service plans and new commercial methods of treating interexchange traffic plus changing toll rate structures all accumulate to render even more challenging than before the problems of keeping pace with equitable settlements methods.

"In addition to these factual considerations involved, the diverse negotiating policies and attitudes of the Bell System and of the numerous companies and organizations representing the Independents are significant in their influence upon the speed and success of working out acceptable future settlement plans. Most American Telephone and Telegraph Company representatives and many of the representatives of the Bell System subsidiary companies make no bones about their regarding toll settlement negotiations with the Independent industry in the same light as collective bargaining negotiations with their labor unions. This is in keeping with "arms length bargaining" principles. There is the same mutuality of overall objectives in Independent-Bell settlement negotiations as in labor negotiations; both parties have a vital stake in the overall welfare of the industry. The machinery of "across the table" negotiation appears to be the most satisfactory means of reaching a common ground wherein the rate payers employees and investors in the Bell System companies on the one hand and the rate payers, employees and investors in the Independent telephone properties on the other are properly and adequately provided for out of the overall revenues generated from the business.

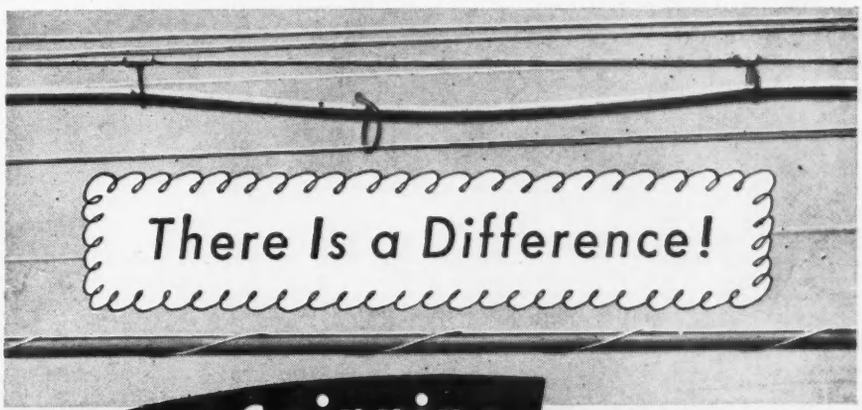
"However, neither the Bell System companies nor the Independent telephone companies seek nor have chosen to use methods comparable to the strike nor to the shut-down to force agreements. Neither the public nor our employees have become involved . . . and perseverance and the accumulation of facts are usually successful in reaching an agreement without the necessity for hard feelings or pressure."

A. W. Lambert, engineer with the Los Gatos Telephone Co., Los Gatos, Calif., presented the problems brought about by the establishment of extended area service as it affects the Independents, stressing particularly the great distances to be covered in the West.

Robert C. Hummel, technical advisor for the West Coast Telephone Co., Everett, Wash., presented a very interesting paper, "*Some Sidelights on Machine Switching.*" In his paper, Mr. Hummel described briefly the development of various types of machine switching and those fundamental features which are in use in the systems of today.

Dr. Erwin Graue, Professor of Economics at the University of Idaho, took as his subject "The Economic Future of the Northwest". He stated that between 1940 and 1947 we had a substantial increase in plants, but that it was not a sensational increase and does not represent a large scale migration of population at the cost of other regions. Manufactutring plants have tended to locate where there's a favorable labor condition, where raw materials, political factors, taxes, and like operations are all favorable.

The banquet for all telephone men and women at the convention was held in the Marie Antoinette room of the Davenport Hotel Friday night and was attended by over 350 persons. The food was excellent, as was the entertainment, and it was a time of general merriment and good cheer. I. L. Krehbiel presided, and introduced the Reverend Father James S. Corkery, president of Gonzaga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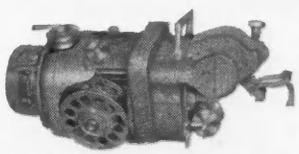

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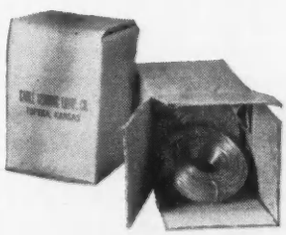

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University, who carried out his toastmaster's duties in a sincere and heart-warming manner. Father Corkery concluded his portion of the program by urging all to uphold the light of liberty and to be eternally vigilant if we would preserve our way of life.

At the breakfast of the Independent Telephone Pioneer Association, A. T. West, president, acted as master of ceremonies. Various activities of the Association, including membership in the national group, were discussed.

An election was held, and new officers are R. C. Hummel, West Coast Telephone Co., Everett, president, and D. O. Hood, Portland, vice president. J. W. Baker, Spokane, was retained as secretary-treasurer.

"Commission Regulations" was the subject of a talk given by Joseph L. Kennedy, Chief Accountant of the Public Utilities Commission of Oregon. Mr. Kennedy discussed the problems of small telephone companies—their lack of adequate earnings, the financing of much-needed additions, improvements and extensions to property, and their accounting problems.

Mr. Kennedy stated that the problem of raising capitaal, either debt or equity, by small utilities is a matter of serious concern, and that the Public Utilities Commission has in the past, and will continue to assist any of their Oregon utilities in revising their rate schedules and in the preparation of the necessary financial statements to justify proposed rate increases at public hearings which the Commission requires with respect to all applications for an upward revision in rates.

Saturday's general session began with an address on the "North Atlantic Community" by Charles E. Martin, professor of Political Science of the University of Washington. Dr.

The very Reverend Charles E. McAllister, Dean of St. John's Cathedral, Spokane, closed the convention with an inspiring address, "Whither America."

As a result of the election held at the annual meeting of the Washington Independent Telephone Association, the new president is Wm. G. Pottratz of Cowiche; vice president, G. E. Kreiger, Everett, and secretary-treasurer, J. W. Baker, Spokane.

Directors of the Association are C. E. Johnston, Spokane; J. R. Reynolds, Naches; L. M. Curry, Yelm; R. E. Rudolph, Ellensburg; W. H. Deane, White Salmon; G. J. Stover, Mt. Vernon; Ray Dalton, Everett; Hugo Finholm, Gig Harbor; Lamar Gaines, North Bend, and C. A. Pedersen, Lynden.

Newly elected officers of the Oregon Independent Telephone Association are president, Earl Dean, Hood River; vice-president, Gail Wells, Sheridan; and secretary-treasurer, L. A. Gritten, Everett. Newly elected directors are John H. Dillard, Cave Junction; J. U. McGuire, Myrtle Creek; H. O. Wiswell, Haines; and D. O. Hood, Medford, Representative on Inter-Company Toll Settlements; and Gail Wells, Sheridan, Representative on Rural Committee.

## Koiled Kords Names Canadian Distributor

Edgar L. Love, sales manager, Koiled Kords, Inc., New Haven, Conn., has announced the appointment of R. D. Fleck & Co., Ltd., Oshawa, Ontario, as exclusive distributor in Canada for all types of Koiled Kords.

Koiled Kords, the retractile power and communications spring-shaped cords that extend to more than five times their retracted length, have recently been approved for power applications by the Canadian Standards Association.

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In 1835 the first relay was invented by Joseph Henry as a natural product of his earlier researches into the principles of electromagnetism. This invention is, without doubt, one of the most important which has contributed to the development of the science of Telecommunications and there are today few communication systems which do not depend, either wholly or in part, on the operation of relays.

Constant research into the metallurgical, magnetic and electrical properties of relays is carried on in Strowger laboratories. The production departments manufacture scores of thousands of relays a week, this entire output being absorbed in the assembly of the Company's major products.

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OF THE OVERLAKES CORPORATION

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## Are You Spraying Your Right-of-Way!

(*Continued from page 33*)

spray tank, pump and 1,200 feet of hose. Where rock ledges and deep depressions along the right-of-way prevented passage of the truck, an entry was made to the cable close enough to allow running out the hose to do the job. Brush had been cut the year before and only 100 gallons of spray per acre was used. Leaves were wet to the point of run-off and the over-all kill is around 80 per cent.

The other 20 per cent was killed down, but is now showing some sprouting. This represents a situation often encountered in brush control due to a number of unavoidable causes, but which can be combatted by "clean-up" sprays later.

An Indiana utility company used a potato sprayer driven by a 22-horsepower gas engine, applied 200 gallons of 2,4-D and 2,4,5-T combination per acre and reported about 75 per cent kill of all except oaks and hickory. Apparently ash, not killed by this combination, was not a serious problem.

A Kansas utility used a tractor with power take-off, pumping out of two 55-gallon drums on a trailer. They applied 200 gallons of 2,4-D ester solution per acre and reported good results on elm, walnut, box elder, sumac and wild grape, but little damage to oaks and none to osage orange.

Does it pay to go back over a right-of-way the year after the initial treatment and spot-spray those sections where re-growth shows up? Should you use a more concentrated solution on these spot sprays to be sure the job is completed? Nothing is perfect, so how often should you expect to have to re-spray?

These and more questions can not be answered with a great degree of certainty until enough time has elapsed to see how the various programs now under way succeed in practice.

With so many variables costs are almost impossible to summarize, even in a general way. K. E. McFadden of Tree Preservation Company says hand cutting will cost from $65 to $125 per acre, depending on the height and density of the brush and the accessibility of the line. Chemical treatment usually costs between $30 and $80 per acre, depending on the

(*Please turn to page 62*)

**Resurface Worn, Dangerous Floors**

Quickly ½-Inch With

Tufcrete REG. U.S. PAT. OFF Resurfacer

Ideal for warehouse floors, loading docks, walks, platforms — easily installed over wood, concrete or composition floors — outwears either.

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- Meets all new F.C.C. requirements including adjacent channel operation and modulation limiting (deviation control).
- Furnished complete with all accessories.

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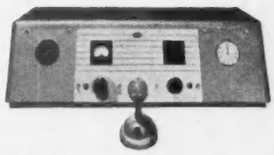
- Complete transmitting - receiving equipment for 30 or 60 watt base station systems.
- Designed throughout for maximum convenience, efficiency, ease of operation and simplified maintenance.



Model US 60-I-LC control console (shown above) contains every desirable feature of a fixed station control unit. Equipment for wall or rack mounting also available.

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By CARL HEYEL
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The book is arranged as a kind of "three-cornered conversation" among the book, the reader and the author. The main argument is carried on logically and impersonally by the book. However, this thread is broken time and again by the author, who offers examples and personal observations to point up the discussion. Whenever he "puts his oar in" in this way, the type is indented and set smaller face. This illustrative matter comprises a broad range of actual case examples.

The book presents five "flow charts" that give graphically bird's-eye views of the ideas developed. After the book has been read, examination of these flow charts in sequence will furnish an accurate review of the whole presentation.

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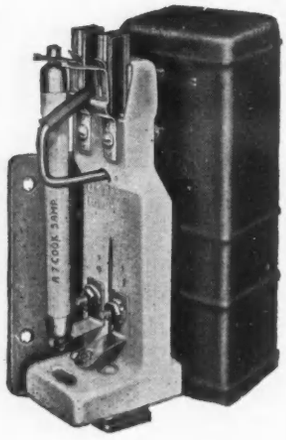

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A single circuit protector for either inside or outside service. Consists of two TruGap Dischargers that will not ground the line. Fuses blow at 5 amperes. Glazed porcelain prevents surface leaks. Grounded zinc cover.

Complete ..... **$1.60 each**

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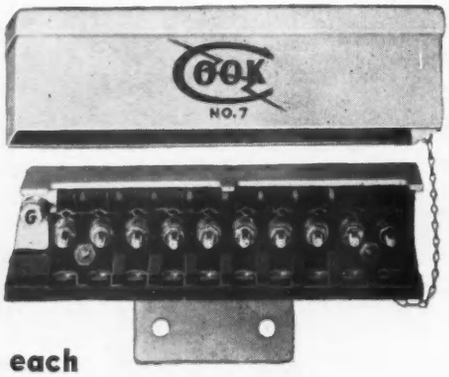


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5 pair capacity ..... **$5.00 each**

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W.E. #58A Station Protector with covered discharge blocks and new fuses ..... **$1.05 each**

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same common problems, and to some extent on the material used. Cutting must be repeated about once every three years, while it now appears that after the first treatment with chemicals, and the follow-up the second or third year, spraying will not be required nearly so frequently.

Some utility companies have embarked on a program of biennial sprays over the next six or eight years, feeling that a turf condition will have developed by that time to discourage development of woody plants. After this condition is established, they hope to control brush growth with a quick spray once every five years. Six Pennsylvania companies with the most extensive experience in chemical control are quoted by Mr. Jacobs as having schedules that range from one spray every five years to four sprays in eight years.

Encouraging new developments are undoubtedly just around the corner. Experiments in Oklahoma with a "mist" type orchard sprayer show possibilities of achieving more complete coverage of foliage with less material per acre; if it were just possible to get one of the rigs over some of these rough rights-of-way. Airplanes and helicoptors, due to insufficient carrying capacity and lack of maneuverability have not shown much promise in the field of right-of-way spraying.

Of one thing, we can be certain. Chemical brush control is here to stay. The trend is toward the elimination of hand cutting to the greatest degree possible.—THE END.

### *Telephones Arrive Before REA Loan Is Approved*

**ACCORDING to the *Duchesne (Utah) Record*, a shipment of 541 telephones recently received for those who have signed up under the rural telephone program will be useless until Claude Wickard, REA administrator, approves the Uintah Basin Telephone Cooperative Association, Inc.'s application.**

**E. Floyd Ross, Farmers' Union fieldman, was busy after the shipment arrived, urging all interested civic groups and individuals to apply pressure toward getting the application approved.**

# "Heavy-Duty Engineered, eh... WHAT'S IN IT FOR ME?"

**What does it mean** when we say every new International Truck, large or small, is heavy-duty engineered? That means every one of the thousands of parts of each truck is engineered with extra stamina. You get extra ruggedness that pays off in lower-cost performance . . . longer truck life.

It's the same plus value that has kept Internationals first in heavy-duty truck sales for 18 straight years. And you know Internationals are built to last—over half the International Trucks built in the last 43 years are *still in service.*

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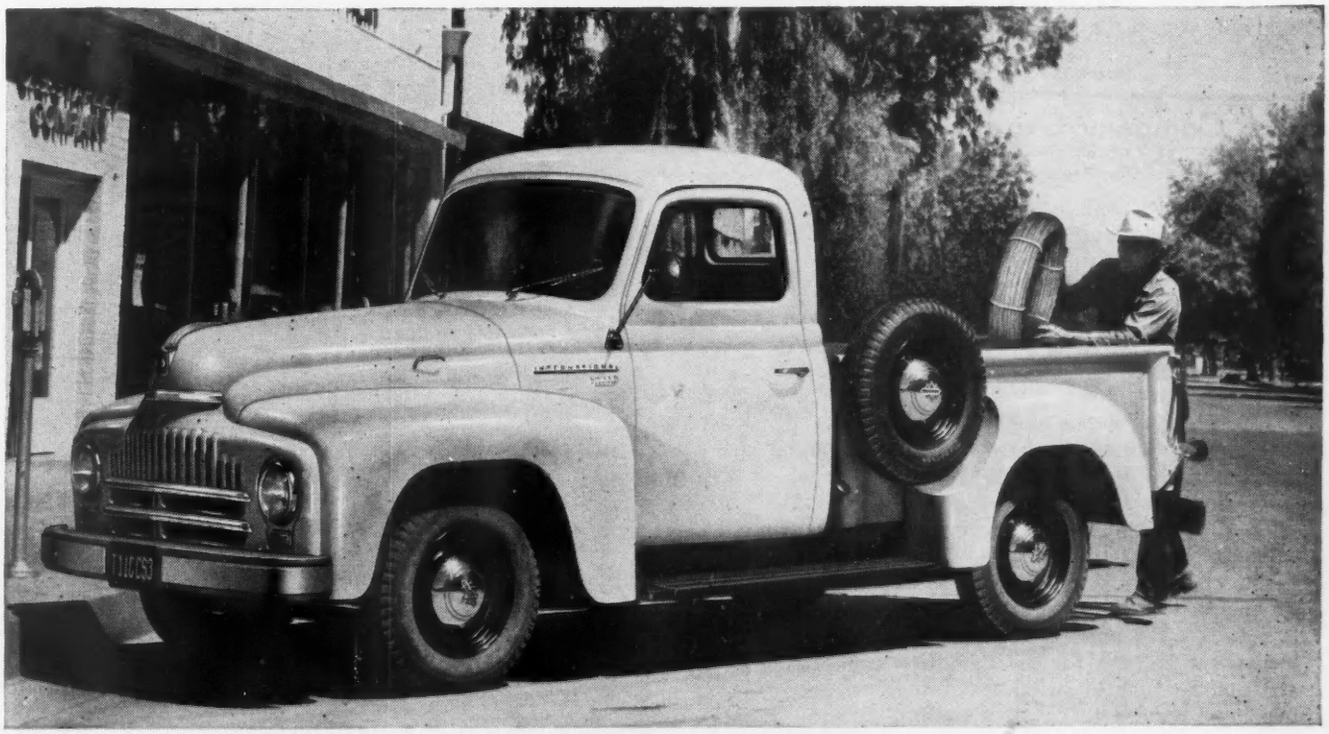
*ALL NEW, ALL PROVED*

## INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY CHICAGO



# NEWS BRIEFS

## W. L. Jennings Buys New Lothrop, Mich. Exchange

Wyman L. Jennings, Montrose, Mich., recently purchased the Shiawassee-Genesee Telephone Co., New Lothrop, Mich., from Mr. and Mrs. Gerald Banghart.

Mr. Jennings, owner of the Public Service Telephone Co. of Montrose, once operated the New Lothrop exchange in partnership with his brother-in-law, J. M. Langston of St. Charles.

## $200,000 Improved Project For Indiana Tel. Corp.

E. S. Welch, operating vice-president of the Indiana Telephone Corp., Seymour, Ind., met with other company officials recently to endorse improvements to telephone service in Madison and Jefferson counties that will cost more than $200,000.

The improvement program will provide service for about 200 persons who are on the company's waiting list.

## New Company Organized At Woodhull, Ill.

In an effort to halt a telephone dispute, four Woodhull, Ill. men have organized a new firm, the Woodhull Community Telephone Co. A charter of incorporation has been issued and the newly-formed company has been authorized to sell 1,000 shares of stock at $25 a share.

The company hopes to sell enough shares in Woodhull and the surrounding community to buy out the Woodhull Telephone Co. and effect a consolidation of the village company with the 11 rural firms.

The charter was granted to Louis P. Kness, Ivan Granberg, Lawrence E. Nelson and Homer L. Horner. The incorporation calls for the operation and maintenance of switchboard and telephone service to cover Woodhull and surrounding communities.

The new company will attempt to sell a block of 400 shares as the immediate goal. It is reported that the Woodhull Telephone Co. officers have indicated several times in the past that they will sell for cash. The rural companies have willingly agreed to consolidation proceedings in the past.

***Fifty years of continuous service in the telephone business is the record of P. M. Ferguson, manager of the Mankato (Minn.) Citizens Telephone Co. The event was observed recently by employees and associates of Mr. Ferguson presenting him with an anniversary cake which the above picture shows him sampling. Starting in the business in St. Paul, Mr. Ferguson rose from lineman to his present post. As manager of the Mankato telephone company, he has developed one of the strongest and best managed telephone companies in the nation. In addition to his many duties he always found time during his years of service to devote some of his energies and talents to public service. He has held many important civic positions and is still active in this field. This publication congratulates Mr. Ferguson for his record and for a job well done.***

## Illinois Company Starts $450,264 Project

Harry Crandell, president of the Illinois Allied Telephone Company, recently broke the ground for construction of a new central office building which will house the automatic equipment for the conversion of the Princeton, Ill., exchange to full automatic operation.

The one-story building will be of brick and tile construction and will cover a floor space of 28 by 80 feet.

The present building will contain the offices as it is presently doing and the long distance equipment. In addition to the office building, the company is constructing a new warehouse and garage building which will be 50 by 175 feet on the extreme east end of its lot.

It is provided in the plans for the building that an additional story may be added for future use in case the population of the city increases appreciably.

Plans provide for the rehabilitation and enlarging of both the city and rural plant, which in addition to pole and open wire construction includes 14.2 miles of under ground cable.

The estimated cost of the various items are: building, $61,000; central office equipment, $200,000; dial telephones and new wiring, $95,218; poles and wire, $13,500, underground cable and terminals, $79,546; miscellaneous equipment, $1,000.

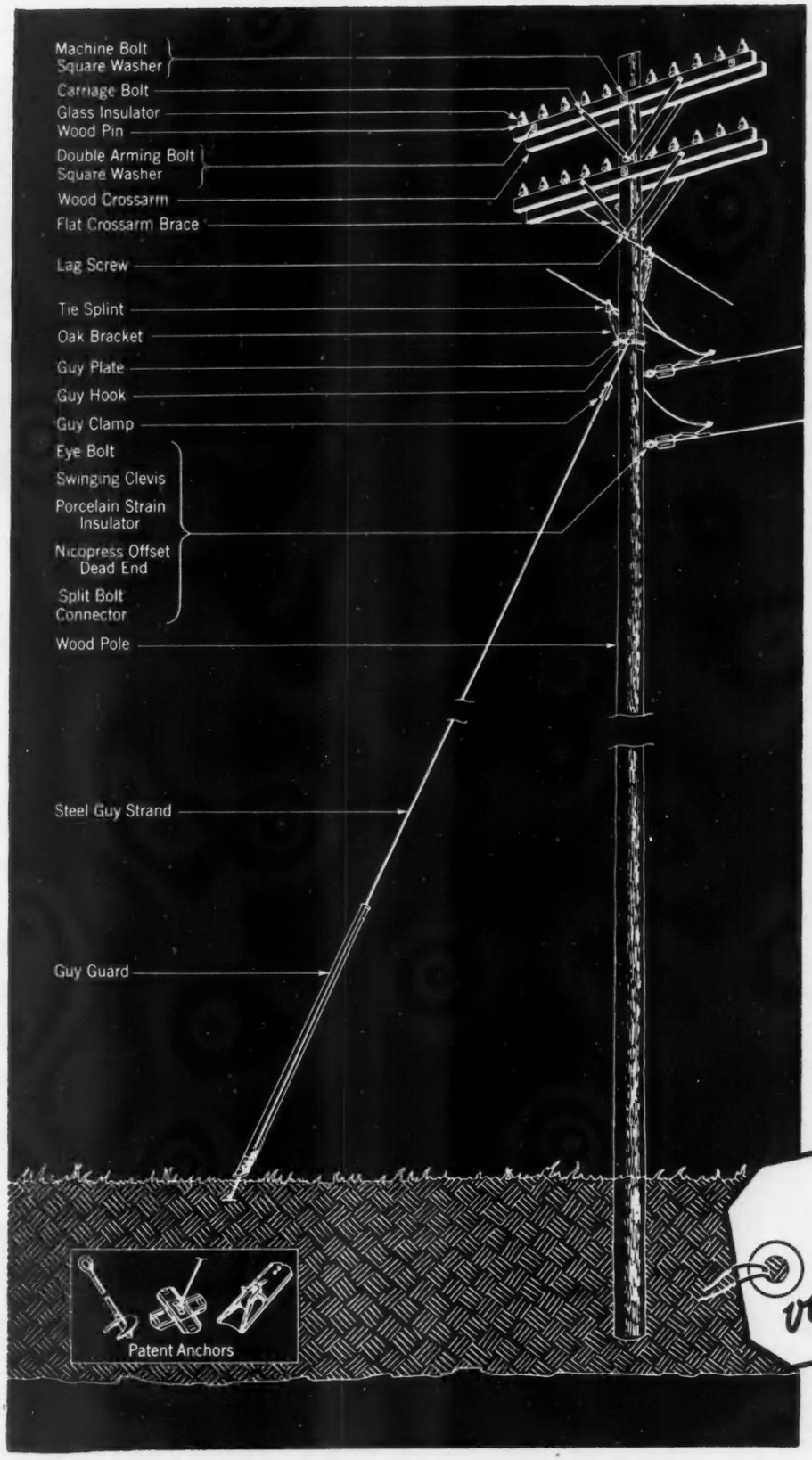
This addition will complete the seventh exchange in the company to be converted to automatic telephones. The other exchanges are Manlius, Mineral, Wyanet, Dover, LoMoille and Ohio. At the present time, the

*(Please turn to page 66)*

# *For Everything...*

## FROM THE BOTTOM OF THE HOLE TO THE TOP OF THE POLE

## ...*Call* GraybaR




Why spend time shopping around for pole-line equipment and supplies? From nearby Graybar you can fill all your requirements with just one order—and be sure you're getting dependable items. Graybar, pioneer supplier of pole-line items to the independent telephone industry, has always selected only proven products of leading manufacturers who serve the independent telephone industry.

Your local Graybar Representative is anxious to make your order his personal responsibility—he'll see that you get prompt deliveries. In addition, the experience of a Graybar Telephone Specialist is always available to help you solve any unusual technical problems.

Besides pole-line supplies, Graybar can provide everything you need for wiring, ventilating, or lighting your buildings—plus "intercom" systems to speed your office work. Graybar Electric Company, Inc. Executive offices: Graybar Building, New York, N. Y.

5031

EVERYTHING IN TELEPHONE SUPPLIES via GraybaR

IN OVER 100 PRINCIPAL CITIES

telephone company is servicing 3,088 subscribers.

Officers, besides Mr. Crandell, include A. E. Henry, secretary and manager, and Miss Dorothy Althoff, treasurer.

## Guy Seaton Heads Nebraska Pioneer Group

Guy O. Seaton, Lincoln, Neb., was recently elected president of the Frank H. Woods Chapter of the Independent Telephone Pioneer Association. Mr. Seaton is personnel director for the Lincoln Telephone & Telegraph Co. Other officers chosen for the coming fiscal year were Max C. Walker, vice-president, and Kenneth J. Boshart, treasurer, with Leon A. Stacy re-elected secretary. All are from Lincoln.

Elected to three-year terms on the executive committee were Howard W. Spahnle, Lincoln, and Lillian K. Bader, Nebraska City. Other members of this committee, holding unexpired terms are Melba Richards, A. B. Gorman, W. K. Eno and A. S. Keckler. Officers for the chapter during the past year were T. E. Longdon, Fairbury, president; Dorothy Lafler, vice-president; Florence Tatman, treasurer, and L. A. Stacy, secretary. The last three are from Lincoln.

## Southern Pacific R. R. Advances W. R. Birt

Appointment of W. R. Birt as superintendent of telegraph for Southern Pacific, effective August 1, with jurisdiction over the railroad's vast telegraph and telephone system in six western states, was announced recently. Mr. Birt succeeds A. W. Flanagan, who plans retirement after a half century career with the railroad.

Starting with Southern Pacific in 1900 as a telegraph operator at Sacramento, Mr. Birt has become one of the best known among western railroad communications officers. Since 1924 he has been assistant superintendent of the department which he is soon to head.

From telegraph operator, Mr. Birt advanced to train dispatcher on the railroad's Sacramento and Salt Lake divisions. In 1906 he was moved to San Francisco as night wire chief in the company general telegraph office. Subsequent promotions included day wire chief, system electrician, and telegraph and telephone engineer.

Mr. Birt is a member of the American Institute of Electrical Engineers and the Engineers' Club of San Francisco, of which he is a past president.

W. R. BIRT

For some years he has been elected, successively, as president of the Joint Pole Association of California, an organization representing utilities using power or communications lines.

## South Dakota Company Reorganizes As Co-op

At a recent meeting the Midwest Light & Telephone Co., Gannvalley, S. D., was reorganized as a cooperative organization owned by the subscribers. Joe Knippling, E. E. Cruson, H. J. Trainer, Herman Viereck, Jr. and H. D. Brown were named directors of the new organization.

## North Dakota REA Group Plans Telephone Action

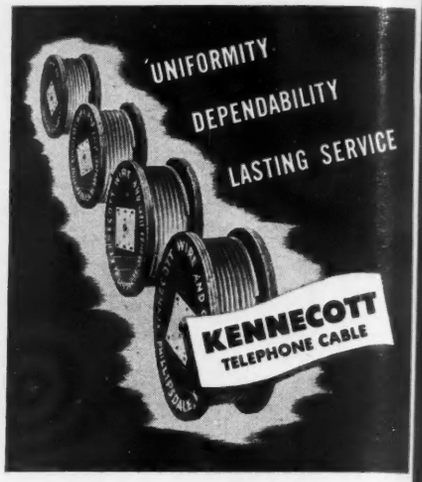
What to do to speed installation of telephones on 45,000 North Dakota farms now without them was the subject of a recent day-long discussion at the Graver Hotel, Fargo, N. D. The meeting, which may be followed by others of a similar nature, was sponsored by the North Dakota Association of REA Co-operatives, headed by Obed A. Wyum, Rutland, N. D.

Participating in the conference as observers were the members of the North Dakota Public Service Commission, C. W. McDonnell and Elmer W. Cart, Bismarck, and Ernest D. Nelson, Sentinel Butte, and commission engineer, Clarence Bryant.

Others were W. J. Brazell, North Dakota general manager, and R. R. Borman, commercial manager of the Northwestern Bell Telephone Company, both of Fargo; J. A. Johnson, Milnor, state secretary of the REA association; Charles F. Vail, Milnor,

(*Please turn to page 68*)

STROMB




*there's very little else to be said!*

Kennecott Telephone Cable literally criss-crosses the country—and any inch of it, found in a busy metropolis or an open field, will test to the same high quality! Years of experience—rigid standards of manufacture—critical testing before shipment—these explain the continuing popularity of this brand.

**Kennecott Telephone Cable** is distributed by Stromberg-Carlson through five conveniently located branch offices in Rochester, Atlanta, Kansas City, Chicago and San Francisco.

STROMBERG-CA

STROMBERG Telephone CARLSON

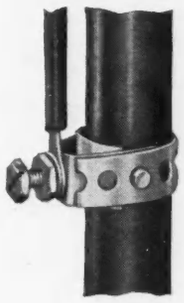
Factory,
Branch
Kansas
Stromber

TELEPHONES, SWITCHBOARDS • SOU IPMENT A

# BERG-CARLSON recommends...

## reliable station ground clamps

• • • for all telephone, radio and signal circuit station grounds. Design principles of this clamp are field-proved to maintain high pressure contact and maximum conductivity to joint.



*Station Ground Clamps are adjustable for grounding to water pipe*

***"RELIABLE" IDENTIFIES THE QUALITY***

## revenue-saving *in long-lasting poles is yours when you use* DIAMOND C POLES

**Now better than ever, as made in Colfax Lumber & Creosoting Co.'s NEW plant**

All Diamond C poles are carefully selected from trees growing in the heart of the famous Southern Yellow Pine belt. Each pole is graded according to physical properties desired and pressure-treated with 8 lbs. (more, if you want it!) of grade No. 1 creosote oil, per cubic foot of wood. A new and modern treating plant promises better-than-ever quality and faster deliveries.

Have the lowest possible annual pole cost. Specify . . .

DIAMOND C

## battery boxes

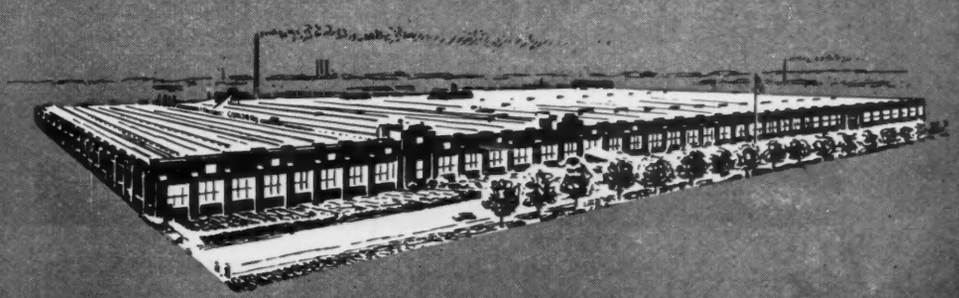
*All steel cases for dry cells*

- Insulated lining
- Tightly covered
- Punched for lead wires
- Available in two sizes
  *Two batteries—*
  *Three batteries—*
- Dust-tight—Moisture-tight Long life

**Made by PARAGON Electric Co.**

# CARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



*UIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION*

# Here's the ANCHOR for Rural Telephone Lines

## CHANCE 6" 8-WAY EXPANDING ANCHOR

**You can stock this six-inch 8-Way Expanding Anchor for most rural telephone line guying—save on initial costs—on installation time—and save stocking two sizes (it's designed to replace the Chance No. 62 & 64).**

**The 6870 sells for $1.30. It has a 70 square inch area and a rated soil-anchor holding strength of 14,000 pounds in class 4 soil (crumbly damp).**

**This anchor has all the fine features of the famous Chance eight-inch 8-Way. It is "streamlined" to expand quickly—no bolts to cut—holding wires shear with a single blow of the expanding bar. There is no wasted area between blades and the weight of the load is carried by eight blades instead of two or four . . . All good reasons why the Chance 8-Way is on the specs of the biggest anchor users in the telephone industry—reasons why you should specify Chance six-inch 8-Way on *your* next order.**

*You know it's RIGHT when you specify CHANCE*

C50-19

A·B·CHANCE CO·

CENTRALIA, MISSOURI · SAN FRANCISCO, CALIFORNIA

ABC INDUSTRIES


president; Robert Matson, Stanley, board member, and A. J. McInnes, Fargo, secretary, of the North Dakota Telephone Association, and others.

While there was some difference of opinion among the conferees as to the cost of telephone service to rural subscribers, it was agreed that the day of $1.00 to $2.00 per month rates has long passed.

In addition to providing service where none has existed before, the expansion program probably will require rehabilitation of scores of deteriorated lines and replacement of outmoded equipment, speakers said. Northwestern Bell officials, explaining the company's program for improving and expanding rural lines, declared the big problem is economic, involving the initial cost and the reluctance of some prospective patrons to recognize the increasing costs of furnishing telephone service.

"It will cost approximately $25,000,000 to complete the program contemplated," said Mr. Brazell.

Northwestern Bell, the Independent lines and other groups agreed to help in furnishing the committee further information on their service, plans and programs.

Mr. Wyum indicated a master plan for rural telephone development may be worked out. He said eight North Dakota groups have petitioned for federal aid in setting up telephone systems.

## Rural Communications Co-op Meets At Alton, Mich.

The Rural Communications Cooperative, Gladstone, Mich., met recently with residents of Ensign township at Alton, Mich., to discuss telephone service needs in the area.

Telephone committees of both Ensign and Bay de Noc townships recently conducted surveys of the area to determine the extent to which service should be extended.

John R. Whitmore, cooordinator of the co-op, states the cooperative is planning to extend telephone service to the rural areas of Menominee, Delta, Marquette and Alger counties. This service will be provided on an area-coverage basis, whereby all applicants will receive service at equal cost, Whitmore said.

Members of the board of directors of the cooperative represent rural areas which are at present without telephone service. They are: John Ohlen, Perkins, chairman; Peder Pedersen, Stonington, secretary-treasurer; Archie Potvin, North Delta; Howard Strahl, Gourley; and Clark C. Haskins, who lives near Au Train.

## Cat burglar?

**A noise arouses Mrs. Brown. Alone, she telephones police. Her "burglar" turns out to be a cat. Not a serious emergency, perhaps, but to Mrs. Brown that call meant peace of mind . . . a good night's sleep.**

• • •

In back of the ready "Number Please" of the operator—or the invitation of the dial tone—there is a dramatic story of continuing *research*, of skillful *manufacture* and dependable *operation* written by America's telephone industry.

Western Electric's part in the story is to manufacture the kind of telephone equipment which helps make this reliable service possible.

**Western Electric**

**TELEPHONE APPARATUS AND CABLE**

Servicing the
INDEPENDENT
Telephone Industry

A
Complete Line of
Telephone Supplies

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LINDSAY-SPENCER COMPANY
Telephone ENdicott 1-0110 7016 Euclid Avenue
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PERSONALIZED SERVICE

SINCE 1889
NATCO
CLAY CONDUIT
The proved and standard Protection for Underground Telephone Cables.
Cheapest in the long run. Highest quality and a full line of shapes.
National Fireproofing Corp.
327 FIFTH AVE.
PITTSBURGH 22, PA.

ALL the strength and durability inherent in steel are combined—with definite economies—in *Crapo* Galvanized Steel Strand. Heavy, ductile, tightly-bonded zinc coatings, applied by the famous *Crapo* Galvanizing Process, provide lasting protection against corrosion.

Ask the distributor of *Crapo* Galvanized Products near you or write direct for further information!

INDIANA
STEEL & WIRE CO.
MUNCIE, INDIANA

## Strowger Automatic Now Serves 2 Chicago Suburbs

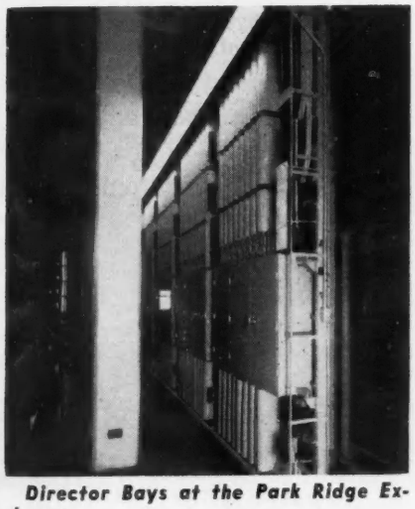
On Saturday, May 27, the telephone exchanges of Park Ridge and Des Plaines, Illinois—two important suburbs immediately northwest of Chicago—were converted to Strowger Automatic operation. The two exchanges are owned and operated by the Middle States Telephone Company

*B. J. RAUCH, commercial supervisor at Park Ridge looks on while MAYOR HAAKE makes the first call.*

of Illinois, one of the telephone operating units of the Central Electric and Gas Company, Lincoln, Nebraska, and are the only Independent exchanges in the Chicago metropolitan area.

Each exchange has an installed capacity of 5000 lines and 8000 terminals, with stations in service totalling slightly less than 15,000. Direct dialing facilities are provided between all stations in the combined area.

The central office equipment was engineered, manufactured and installed by Automatic Electric Company, Chicago, and the cutover just completed brings to a close more than



*Director Bays at the Park Ridge Exchange.*

two years of work and joint planning on the part of the Middle States Telephone Company and the manufacturers.

The conversion was officially initiated at the stroke of midnight by a call made by Mayor Alfred P. Haake of Park Ridge who dialed Mayor Kenneth G. Meyer of Des Plaines, and exchanged greetings with him. The cutover procedure was watched with keen interest by a large gathering of telephone men from the middle west representing the Middle States Telephone Company, Automatic Electric Company, other Independent telephone companies, and Illinois Bell.

Among the officials of the Central Gas and Electric Company who witnessed the ceremony were Max McGraw, chairman of the board; Judson Large, president; Clarence Ross, general counsel; Jack Gallagher, vice president; and E. B. Samp, vice president and general manager of the Middle States Telephone Company.

Mr. Samp was responsible for the overall completion of the program. Operating in the capacity of Division Dial Coordinating head was Martin Wandrey, western division plant manager, whose efforts were supplemented by T. G. Osterhoudt, western division traffic manager, R. J. Riordan, western division commercial manager, and A. B. Clark, western division auditor. The procedures and methods were established by this group which in turn was supplemented by the District Dial Working Committee directed by S. H. Biery, district manager, and including D. H. Hansen, district plant superintendent, J. B. Noggle, district traffic superintendent, B. J. Rauch, Park Ridge commercial manager and V. A. Ralph, Des Plaines commercial manager. L. G. Rhode, district commercial superintendent joined that group shortly before conversion.

Automatic Electric was represented at the cutover by C. S. Cadwell, president; H. F. Lello, vice president and general manager; K. W. Graybill, vice president and chief engineer; G. K. Beare, production manager; J. E. Gonseth, operating services; J. E. Ostline (Laboratories); and L. H. Warner president of Automatic Electric Sales Corporation; together with other representatives of the Company's engineering and sales organizations. The work of installation was handled under the supervision of M. C. Wiseman of Automatic Electric's installation staff. Operating engineers of the company present at the

(*Please turn to page 72*)

***S. H. Biery, district manager, and E. B. Samp, vice president, of Middle States Telephone Co., watch the operation of the DSA board at Park Ridge.***


**"PACKAGED POWER"**
*for your* **PBX** *and* **SMALL SWITCHBOARDS**

**THE LORAIN SUB-CYCLE "RT-UNITS"**

Here combined in one cabinet is both a ***Ringing*** and a ***Talking*** power supply. They provide a choice of either 20 or 30-cycle SUB-CYCLE RINGING CONVERTERS, and are available in 4 Models.

**RINGING CONVERTERS**

- RT-1—3½ W. 20-Cycle ringing +.87 amp. 14-28 V. DC talking.
- RT-2—3½ W. 20-Cycle ringing +2 amp. 24 or 34 V. DC talking.
- RT-3—3½ W. 30-Cycle ringing +.87 amp. 14-28 V. DC talking.
- RT-4—3½ W. 30-Cycle ringing +2 amp. 24 or 34 V. DC talking.

***For Details See Bulletin 159***

**LORAIN "T-UNITS"**

- T-1—0.87 amp. 14-28 V. DC talking
- T-2—2.0 amp. 24-34 V. DC talking
- T-3—0.5 amp. 22-30 V. DC talking
- T-4—1.0 amp. 40-52 V. DC talking
- T-5—0.5 amp. 10-16 V. DC talking
- T-6—1.0 amp. 5-8 V. DC talking

***For Details See Bulletin 159***

**LORAIN DIAL TONE GENERATORS**

Lorain Dial Tone Generators Available in 7 Models. See Bulletin 156. For Specifications and Prices See Your Local Lorain Distributor.

**LORAIN PRODUCTS CORPORATION**
DEPT. L, 1122 F ST., LORAIN, O.

FLOTROL — PARTNERS IN DEPENDABILITY — SUB-CYCLE

CUT COSTS

WITH TIMESAVING

GREENLEE TOOLS

**...push pipe underground with a GREENLEE PIPE PUSHER**

Here's the quick, simple way to install underground pipe. With the GREENLEE Pusher *one man* pushes pipe *under* streets, walks, railways, lawns, flooring. No tearing up of pavement...eliminates extensive ditching, back-filling, tamping, tunneling, repaving. Cuts job time to a fraction. Two models to fit your jobs exactly—hand or power-pump operated.

**Other GREENLEE tools for telephone work . . .**

Do the job faster, better with high quality GREENLEE Car Bits for pole work . . . Electricians' Auger Bits of special design for electrical installation work . . . Bell Hangers' Drills of the "Feeler Bit" type . . . Expansive Bits for boring ½" to 4" holes . . . and GREENLEE Angle-Screw Drivers which eliminate pre-boring for angle-screw installations.

MACHINERY & TOOLS
GREENLEE

Get facts on timesaving Greenlee tools. Write Greenlee Tool Company, Columbia Ave., Rockford, Illinois.

cutover were E. L. Schwartz and C. J. Pracht.

Engineered to meet the needs of two communities that have shown enormous growth in the last few years, the Park Ridge-Des Plaines cutover project included complete rewiring of 96% of the customer locations, extensive aerial and underground cable installations including a new four mile, 505 pair underground trunk cable between Des Plaines and Park Ridge, new building construction in both cities, installation of 5,000 lines of dial equipment, and 14 positions of Dial Service Assistance and toll board at Park Ridge, plus 5,000 lines of equipment at Des Plaines. Each exchange building has capacity for 10,000 lines of central office equipment.

Both exchanges include, in addition to the usual Strowger Automatic local switching equipment, a number of special features made necessary by the complex arrangements for trunking to and from exchanges of the Illinois Bell Telephone Company in Chicago and in nearby suburbs. One of these is a group of Strowger Automatic "Directors" in each exchange to provide digit registering and translating facilities to permit conforming to the universal numbering plan being progressively adopted for the Chicago metropolitan area.

## Stromberg-Carlson Issues Book on XY Systems

Dial exchanges for today and tomorrow in any size community are presented in a new book, "Stromberg-Carlson XY Systems," recently issued by the Stromberg-Carlson Company, Rochester 3, New York.

The attractive and valuable 24-page book describes the Stromberg-Carlson XY System as suited "to the demands of the multi-office exchanges where its inherent economies are multiplied; yet so simple in its basic design that it is equally within the reach of the small operating company . . ." This statement is proved by a presentation of the basic principles and construction features of the Stromberg-Carlson XY operation which thoroughly explains how the flexibility of the XY systems makes it "ideal for the exchange whose growth cannot be accurately forecast . . ."

*New booklet issued on "Stromberg-Carlson XY Systems."*

Also illustrated and described in the booklet are: (1) the Stromberg-Carlson Power Board; (2) Stromberg-Carlson's "pusher-type" relays; (3) circuit plates for the XY dial systems; and, (4) the XY switch.

Of particular value to the telephone company contemplating a changeover to dial operation, the new booklet presents floor plans, illustrations and descriptions, illustrating how the Stromberg-Carlson XY Dial equipment provides the individual dial needs of a large city, a medium size community, or a small town.

Copies of this informative booklet may be obtained direct from Stromberg-Carlson Company, Rochester 3, New York. Request Booklet T-107.

## Federal Appoints New Comptroller

The appointment of Raimund D. Osborne as comptroller of Federal Telephone & Radio Corp., Clifton,

THE
**RINGING MACHINE**
**YOU SHOULD NOT MISS!**

Never before has a machine been produced to deliver ring power at this extremely low price.

*It's the* **TELERING**

*at only* **$34.50**

MODEL R

**Size: 4"x4½"x10, shpg. wt.: 8 lbs.**

CONSIDERING THE ALL INCLUSIVE FEATURES THERE IS NO EQUAL

Manufactured by

**TELKOR**

BOX 186 ELYRIA, OHIO
NORTH MURRAY RIDGE ROAD

N. J., a manufacturing affiliate of International Telephone & Telegraph Corp., has been announced. Mr. Osborne succeeds George T. Scharffenberger, who has been appointed assistant to General William H. Harrison, president of I.T.& T. and chairman of Federal's board of directors.

Mr. Osborne, who joined the I.T.&T. system in 1928, served as an assistant comptroller of I.T.& T and in 1942 was transferred to Federal as assistant comptroller. He has been with Federal since then except for a brief period in 1948 when he was assigned to a mission in Europe by I.T.& T.

Mr. Scharffenberger, newly appointed assistant to General Harrison, served as comptroller of Federal for the past three years. Joining the company in 1943 as general auditor, he became assistant comptroller a year later. He continued in that post until he left Federal for war service. After his discharge from the Army, Mr. Scharffenberger returned to the company and was appointed Comptroller in 1947.

A graduate of Columbia University and a C.P.A. of New York, Mr. Scharffenberger was a staff accountant for the firm of Arthur Anderson and Company, New York, before joining Federal.

## J. M. Taylor Joins Whitney Blake Co.

John Brown Cook, president, Whitney Blake Co., New Haven, Conn.,

*J. M. TAYLOR*

has announced the appointment of J. M. Taylor, West Hartford, Conn., as assistant sales manager.

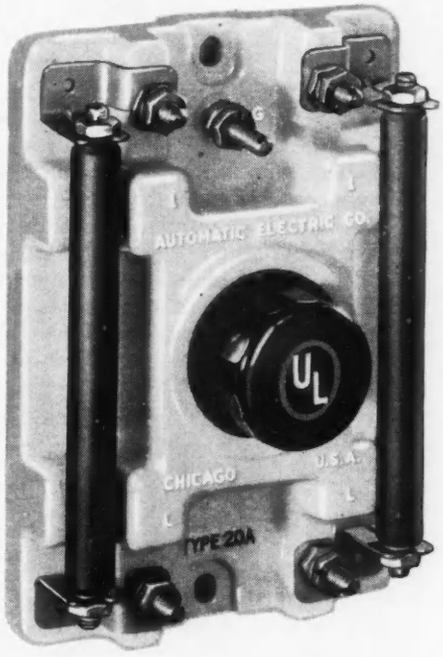
Until recently, Mr. Taylor has been a New England representative of Collyer Insulated Wire Co.


Automatic Electric's

TYPE 20A

INDOOR PROTECTOR

Gives You WIDER SAFETY MARGIN




(Listed by Underwriter's Laboratories)

Guard subscriber stations with this sturdy indoor protector. Heavy, one-piece porcelain base has barrier walls between discharge blocks and fuses and terminals, providing a wide margin of dielectric strength. Discharge surfaces are very accurately spaced—give proper protection without excessive maintenance. For real protection, order Automatic's Type 20A Protector, Cat. No. SB-88. (Also available with cover, for outdoor installation—Cat. No. SB-91).

PRODUCT OF THE SPECIALTY DEPARTMENT OF

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: international Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

## Small Company

(Continued from page 50)

check is written. The second way is to accumulate the amounts paid in some intermediate or temporary account, and then distribute these amounts or accounts at the end of certain periods, months, quarters or years. In the smaller companies, I prefer the first method. It is not as exact as the second, but if reasonable care is taken, it is accurate enough for all reasonable needs, and it is much easier and requires much less record keeping. If this method is followed, however, the same person who supervises plant, construction, maintenance, traffic, commercial, etc., must be the one who distributes the expenditures.

Let's take some examples of how this works. We will assume that the company we are talking about has a fairly complete set of basic accounts —that is, it has its plant, cash, accounts receivable, etc., set up as assets, and its proprietorship or capital stock and surplus, accounts payable, depreciation reserve, notes payable, etc., set up as liabilities. It will also have income and expense accounts, in which these items are recorded. As a first example, let's take the manager's salary. When the check is written, the amount is a credit to cash, and a debit to something. Just what, is the question. If the manager spent all of his time doing office work that month, then all of the salary would be debited to office salaries, or office expense. On the other hand if he spent a week on office work, a week on switchboard maintenance, and 2 weeks helping construct a new rural line, then ½ of his salary should be charged (debited) to plant account or accounts, ¼ should be debited to office expense, and the remaining ¼ should be debited to maintenance expense. This distribution can be made in the same book in which the check is recorded, or in a separate "voucher register" or "accounts payable journal" or wherever the job is done in your set of books. But do it at the time the check is written (or when the expense is incurred, if you maintain an accounts payable account).

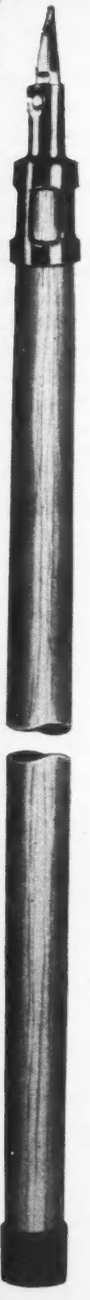
The same argument applies to the combination man. If he does several different things, then his pay should be debited to several different accounts, according to the jobs he performed.

When a material invoice is received, it should be immediately "distributed". Ordinarily, in a small company, the manager can make a 95-100% correct guess as to what that material is to be used for. More often than not it was ordered for a specific purpose. Therefore, at the time the invoice arrives, it can be distributed among the accounts for which it will be used. The two difficulties are, of course, that the material may not be so used, or it may not be used in the same period in which it is paid for, either of which will throw statements a little off. But neither of these arguments is particularly valid, because in the average small company, the manager can make a pretty shrewd guess as to what certain items will be used for. And to offset the second argument is the fact that most small companies do not order large quantities of any one item, nor do they order a large number of items at the same time. Thus, small quantities of material are arriving all the time, and if some expense item purchased this month will last for the next three, it is offset by some item purchased one or two or three months ago that is just now being used, etc.

Furthermore, this method of distribution can be rendered more accurate by the keeping of some very simple memorandum records. Examples of such records could be: a sheet on which the manager lists his own activity, very briefly, so that he can distribute his time correctly when he is paid, or a similar record of the time spent by the combination or plant man or men. A simple recording of hours under a few different columns headed with different types of work will do this job nicely even in fairly good sized companies. A detailed record can be kept on the use to which a typical shipment of some item, used for both construction and maintenance, is put, and these figures applied to other typical shipments. The smaller the company, the simpler and less refined these memorandum records can be. The larger a company gets, the more detailed and specific they will have to become. They should develop, eventually, into records called Time and Material reports, in which are listed accurately the time and material spent each day, or on each job.

In all cases, large and small, the establishment of the idea that expenditures must be distributed between expense and investment, is the important step.—THE END.

STROMB



chance pike poles

*with reversible safety point*

Recommended for raising telephone or power poles, and as ground braces in pole setting work. Made from Douglas or Western Fir, free from defects and lacquered. Reinforced steel collar at butt protects against splintering. Pike or ferrule available separately.

Safety point is reversible—may be inserted into ferrule to eliminate sharp projection. Replaceable when worn.

Wire lift attachment, for handling telephone and low voltage secondary conductors.

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# BERG-CARLSON recommends...

## the cook A-9u 7 amp. lavite fuse

For telephone men who prefer the best.

The Cook A-9u Lavite fuse is rated to blow on a 50% overload within 5 minutes.

This is in accordance with Underwriters' specifications and this fuse carries Underwriters' approval.

Cook also manufactures a full line of fuses carrying "Telephone Rating." These fuses blow instantly at their rated capacity.

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Literally "by request"—this new operator's chair retains all the posture advantages for which Sturgis is famed and adds the cool, clean comfort of a *cane* seat. The posture-curved, well-cushioned back rest is covered in genuine leather.

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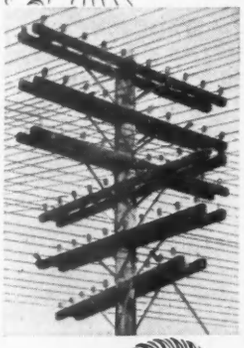
## "dependable" *means both the trade-mark & the guarantee of cross-arms by* American Cross-Arm Inc.



The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

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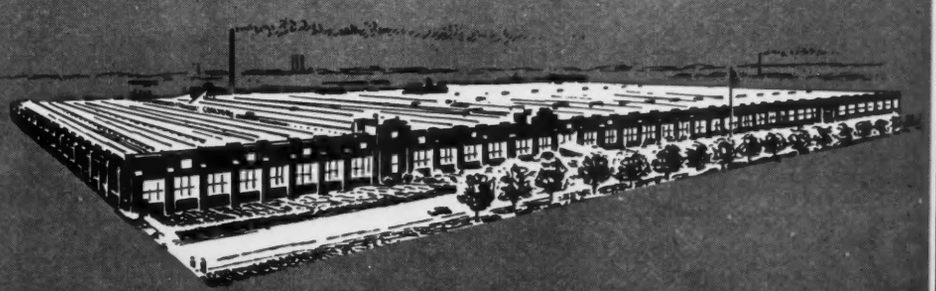

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*Ellis L. Spray, president of Agava Products, Inc., 34 Exchange Place, Jersey City 2, N. J., has announced the appointment of Horace G. Bennecoff (above) as general sales manager in charge of all merchandising and distribution of Agava products. Mr. Bennecoff has been active as a sales consultant and was formerly associated with Federal Telephone & Radio Corp. as sales manager of several divisions.*

## Kellogg Announces Personnel Changes

Kellogg Switchboard and Supply company entered the second half of the current year with seven major shifts in sales personnel, according to announcement made by F. M. Parsons, company sales manager. Appointments were effective July 1.

Heading up the list is Eldon W. Miller, who was named Eastern division sales manager to supervise all sales and sales representatives in the area east of the Mississippi river. Mr. Miller, who has been in the telephone

*ELDON W. MILLER*

WILLIAM D. BURKE

business since 1925, and with Kellogg since 1936, has held the key spot of manager of apparatus sales since 1942. Previously, he had served as company field representative in Minnesota and North Dakota, and also had been in the switchboard sales department.

Replacing Mr. Miller as manager of apparatus sales department will be William D. Burke, sales manager for the company, who with Miller engineered and sold the company's 3,000-line Relaymatic in Anchorage, Alaska, last year. With the company since 1944, he also authored the *Outside Plant Handbook*, which is widely used by telephone companies across the country. In the telephone field since 1919, Mr. Burke previously was with Bell and independent companies.

O. C. Bailey, the company's field representative in Texas since 1945, has been named manager of the newly-created Southwestern division, as announced in this issue.

Other shifts in key personnel in Kellogg's sales division include: John Hettler, assistant manager of the Western division, Kansas City, who was appointed office manager of the Dallas branch, Dallas, Tex. Replacing him in the Kansas City office is A. B. Langston, former district manager of St. Paul, Minn.

Carl Megelin, former sales manager, telephone sales and service, New York City, is taking over the post of manager, special products department, including Select-O-Phone division, credit authorizing department, and Type-O-Writer department.

W. P. Garrett, a 1950 graduate of the Texas Institute of Technology, Lubbock, Tex., was added to the Kellogg sales staff as a field representative.


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Amertel "85", with its greater tensile strength, means longer spans and a consequent savings in poles, crossarms and hardware.

Run your outside lines with Amertel "85" and hang your cables on Amerstrand for greater pole line economy.

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Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
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**HELP WANTED:** Switchboardmen, Combinationmen, Linemen wanted for work at good pay and under pleasant conditions including good fishing and hunting. Apply Union Telephone Company, Owosso, Michigan giving full details, experience, references, and salary expected.

**HELP WANTED:** Combination man capable servicing North All Relay equipment and two position CB board. State experience and expected salary to start. Write Box No. 8683 c/o Telephone Engineer.

**HELP WANTED:** Commercial and Public Relations manager. Fully automatic single exchange of 15,000 stations. Must know telephone accounting and have general knowledge of automatic equipment and outside plant. State age, experience, marital status and salary expected. Write Box 8685 c/o Telephone Engineer.

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**HELP WANTED:** Manager wanted for a Western Independent telephone operation of 6500 subscribers with several exchanges. Personal experience in all phases of business necessary. Must be good organizer, economical operator and able to prepare and present rate cases before commissions. Replies confidential and should contain personal data, experience, accomplishments and salary desired. Write Box No. 8680 c/o Telephone Engineer.

## *For Sale*

**CENTRAL OFFICE EQUIPMENT**—8 positions of Stromberg-Carlson switchboard including 3 toll positions, 1 universal position, 4 local super-service positions. Associated equipment to accompany switchboard. Available October 1. Reason for change—cut-over to automatic operation. This equipment is now in operation and is to be removed by purchaser. Contact C. D. Ehinger, Citizens Telephone Company, Decatur, Indiana.

**FOR SALE:** Entire stock in Magneto exchange located in Northeast Kansas. 1949 gross after Bell commission $11,000. Selling price less than twice that amount. Box No. 8681 c/o Telephone Engineer.

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POSITION WANTED: Telephone Executive available. 11 years experience with large Independent. All phases. Will assume full charge of management, accounting, rates and taxes. Best references. Location unimportant. Write Box No. 8684 c/o Telephone Engineer.

## *For Sale (Cont'd)*

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**In use now—will be available after our dial conversion—approximately Sept. 1, 1950.**
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# the New Products Showcase

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**CORDS, Switchboard & Telephone**—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 17]

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**POLES, Southern Yellow Pine**—Colfax Lumber & Creosoting Co., Inc., P.O. Box 23, Pineville, La.—**[ADV. 39]**

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**POLES,** Creosoted Southern Yellow Pine and Douglas Fir. The Long-Bell Lumber Company, Wood Preserving Div., R. A. Long Bldg., Kansas City, Mo.—**[ADV. 41]**

**POLES, Southern Yellow Pine**—Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.—**[ADV. 42]**

**POLES, Southern Yellow Pine**—Texas Creosoting Co., Orange, Texas.—**[ADV. 43]**

**POLES**—Texas Best pressure-creosoted poles. Lone Star Creosoting Co., P. O. Box 9, Longview, Texas.—**[ADV. 44]**

**POLES**—Western Red Cedar, Western Larch, Lodgepole Pine. B. J. Carney & Co., Minneapolis 3, Minn. and Spokane 8, Wash.—**[ADV. 45]**

**POLES & CROSS ARMS**—Creosoted poles and crossarms. Conroe Creosoting Co., Conroe, Texas.—**[ADV. 46]**

**POLE LINE HARDWARE**—Manufactured and stocked on the Pacific Coast by KORTICK MANFACTURING COMPANY, 345 First St., San Francisco 5, Calif.—**[ADV. 47]**

**POWER UNITS**—Insure against Power Failure with a "U.S." Stand-by Unit. Write for information. United States Motors Corp., 558 Neb. St., Oshkosh, Wis.—**[ADV. 48]**

**PROTECTIVE EQUIPMENT**—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—**[ADV. 49]**

**GAS-TITE CABLE TERMINALS—Sub station protectors, main dist. frames; central office protectors; interior junction boxes; lightning arrestors.**—Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.—**[ADV. 50]**

**PRINTING**—Telephone forms. Cullom & Ghertner Co., 600 21st Ave., Nashville 4, Tenn.—**[ADV. 51]**

**RADIO**—Two-way radio systems. Motorola, 4545 W. Augusta Blvd., Chicago 51, Ill.—**[ADV. 52]**

**REBUILT TELEPHONE EQUIPMENT—USED EQUIPMENT BOUGHT AND SOLD**—Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.—**[ADV. 53]**

**REBUILT TELEPHONE & SWITCHBOARDS**—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—**[ADV. 54]**

**SAFETY FOOTING**—"Hydra-Lizer" gives safety footings for all conditions; adjust ladder to terrain. Anderson Products Co., P. O. Box 691, Tulare, Calif.—**[ADV. 55]**

**SOLDERING IRONS, Electric**—Vulcan Electric Company, Danvers 17, Mass.—**[ADV. 56]**

**SUPPLIES**—New all metal heavy duty extension loud ringers; ready wire reels, payout only and payout and takeup in one.—Suttle Equipment Co., Lawrenceville, Ill.—**[ADV. 57]**

**TELERING**—Telephone ringing by frequency conversion. Voltage range for all purposes, central office and private branch exchanges. Telkor, Box 186, Elyria, Ohio.—**[ADV. 58]**

**SWITCHBOARDS, TELEPHONES, ETC.**—Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill.—**[ADV. 59]**

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**TRUCK BODIES AND EQUIPMENT**—McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.—**[ADV. 65]**

**TRUCKS**—Heavy Duty Engineered To Save You Money"—International Harvester Co., Chicago, Ill.—**[ADV. 66]**

**UNDERGROUND TOOLS,** Specialties and equipment for conduit and cable construction work. B. S. Barnard Co., 128 Lafayette St., New York 13—**[ADV. 67]**

**WIRE DROP & INSIDE**—Jackets of neoprene, rubber or plastic. Lowell Insulated Wire Co., Lowell, Mass.—**[ADV. 68]**

**WIRE, FIELD TELEPHONE**—Sugarman Equipment Co., 420 E. 8th St., Los Angeles Calif.—**[ADV. 69]**

**WIRE, Insulated—DATED DROP WIRE—Neoprene or Weatherproof**—Alphaduct Wire & Cable Co., Milltown, N. J.—**[ADV. 70]**

**WIRE, Insulated Drop and Bronze or Copperweld**—Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.—**[ADV. 71]**

**WIRE, Insulated Drop, Genuine Ironite**—Paragon Electric Co., Two Rivers, Wis.—**[ADV. 72]**

**WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation**—Paragon Electric Co., Two Rivers, Wisc.—**[ADV. 73]**

**WIRE, TELEPHONE,** for all inside and outside uses—Whitney Blake Company, New Haven 14, Conn.—**[ADV. 74]**

**WIRE CUTTERS**—H. K. Porter, Inc., 74 Foley, Somerville, Mass.—**[ADV. 75]**

**WIRE REELS,** Saves time and trouble in paying out wire. Send for literature, Hykon Mfg. Co., Alliance, Ohio.—**[ADV. 76]**

**IF YOU DO not see a listing in these columns of products or services you are interested in write "Buyers' Directory", 7720 Sheridan Road, Chicago 26, Illinois, for such information. It will be furnished quickly and without charge.**

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NP 246..... NP 247.....

**SERVICES AND SUPPLIES**

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Street Address .....

Town ..... Zone..... State.....

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FULL LENGTH TREATED *NORTHERN* WHITE CEDAR

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## James A. Driessen Named FWD Director

James A. Driessen, treasurer and assistant general manager of The Four Wheel Drive Auto Co., Clintonville, Wis., was elected a member of the board of directors of the company at the regular meeting of the board.

Mr. Driessen has been with FWD for 20 years. He first worked for the company as a factory employee in the summer of 1927 after graduation from the Marion, Wis., high school. He attended the University of Wisconsin and then deciding to make his career with FWD, took a position in the cost department in October, 1930.

*JAMES A. DRIESSEN*

Mr. Driessen was appointed second assistant treasurer in 1938 and a year later became assistant treasurer and manager of the FWD treasury department.

He was named treasurer of the company in 1947, and in that position organized and placed in operation FWD's budget system. He was appointed assistant general manager of FWD in October of last year.

## Holtzer Cabot Appoints New Sales Director

Charles T. Button has been appointed director of sales for Holtzer-Cabot (division of National Pneumatic Co., Inc.) manufacturers of special, small motors since 1875.

Formerly with Holtzer-Cabot for 18 years as assistant sales manager of the electric motor division, Mr. Button comes to his new assignment from Howell Electric Motors Com-

## Party Line Transmission and Ringing Improved with Vincent Rare Gas Relay

**May be Used with Harmonic or Coded Bells**

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End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

Since the resistance of the relay is practically infinity below 60 volts, its normal breakdown voltage, the line remains normally free from paths to ground. Ringing voltage of 85 volts ionizes the rare inert gases, is transmitted without difficulty.

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pany, Howell, Michigan, where he was vice-president in charge of sales.

Mr. Button also served for three years as sales manager of the Electrical Controls Division of The Master Electric Company, Dayton, Ohio. A graduate electrical engineer and author of numerous articles on electrical rotating equipment, Mr. Button is an alumnus of the University of Cincinnati.

## George W. Moore Dies In Cape Town, So. Africa

George Wellington Moore who, up to his retirement in 1936, was manager and a director of Automatic Telephone & Electric Co., Ltd., Liverpool, died recently, at the age of 77, in Cape Town where he had made his home.

Following an apprenticeship to Telegraph Engineering in the British Post Office factory, Mr. Moore emigrated to Cape Colony. In 1899 upon the outbreak of the Boer War he was called upon to increase the capacity

GEORGE WELLINGTON MOORE

of the telegraph lines to meet military traffic requirements and designed a chain of quadruplex repeaters and high speed wheatstone circuits which did much to improve communications throughout the Colony.

He joined the Automatic Telephone Company shortly before the first world war as a Telegraph Engineer. His promotion was rapid and in 1917 he was appointed Manager. Though living in retirement in South Africa he took an active interest in the affairs of Automatic Telephones (South Africa) Ltd., Johannesburg—a subsidiary of the Liverpool Company—and was its chairman until his health broke down in February this year.


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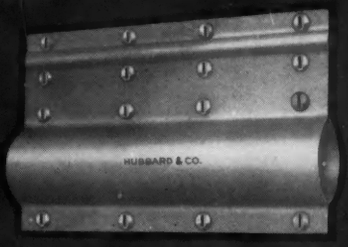
HUBBARD GRADE CLAMPS
Hot Galvanized



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STEEL CLAMP

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STEEL CLAMP

A problem often encountered in telephone construction is the "creeping" of cables which are run on grades. A convenient remedy for this situation is the use of Hubbard Grade Clamps. These clamps are designed to grip both the messenger and cable securely and yet not harm the relatively soft cable. The efficiency of this design is sufficiently high that Hubbard Grade Clamps maintain both messenger and cable in the same relative position, and eliminate "creeping."

Pressed Steel Clamps are 12-inches long by 7⅛-inches wide and are furnished with stove bolts. Drop Forged Clamps are furnished with four ½-inch oval neck clamp bolts.

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PITTSBURGH CHICAGO
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**for Every Telephone NEED**

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4236 CLAYTON AVE. • ST. LOUIS 10, MO.
*Overhead and Underground Utility Equipment*


## Kellogg Switchboard Opens New Sales Office

Expanding its service to telephone company customers in the southwest, Kellogg Switchboard and Supply Company early in July opened a Southwestern division with new sales office and branch warehouse at 105

O. C. BAILEY

Glass St., Dallas, Tex., F. M. Parsons, company sales manager, announces. O. C. Bailey, the company's field representative in Texas since 1945, has been named manager of this newly-created division.

The Southwestern division is comprised of Texas, Louisiana and New Mexico, and portions of Oklahoma and Arkansas, Parsons added. The territory previously had been served from Western division headquarters in Kansas City.

The new division with its Dallas headquarters will facilitate both sales and service to the company's many customers in the area, the sales manager explained, adding that the new arrangement fills a long-felt need.

Southwestern Division Manager Bailey, who has an outstanding sales record in Texas, had previously been affiliated with the Southwestern Bell Telephone company in Fort Worth before joining Kellogg's in 1945.

## Universal General Moves to New Home

Universal General Corp., formerly of 365 Canal St., Chicago, has moved to larger quarters at 324 Canal St., Chicago, Ill.

The Universal corporation specializes in relays of all types and stocks of all components have been enlarged.

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Because it is always adaptable to any type of installation, the

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# The Back of The Book

By JOHN G. REYNOLDS

**New Style Western** . . . Humphrey Bogart and Nunnally Johnson have come up with an idea for a new-type Western movie, according to John Crosby's column in the Chicago Daily News.

The central theme is that of the Bell System's coaxial cable creeping westward, its progress strenuously resisted by a primitive tribe of movie actors—Clark Gable, Gregory Peck and Bogart and a lot of others who have made a handsome living out of pictures.

Every morning the heroic little band of TV pioneers—Sid Caesar, Milton Berle and Hopalong Cassidy—repair the damage and fight off the savages, pressing ever westward.

Sounds like a mighty good plot to us, but we're old onough to remember those good old silent pictures when a man could sneak in a little nap, so we'd be inclined to regard both groups as upstarts.

• • •

**More Base Hits, More Toll Calls . . .** Bell System Companies operating in American League cities are watching the batting average of Dick Kokos, St. Louis Browns outfielder, according to a story we saw in the St. Louis Sporting News.

It seems Dick is in the habit of making collect calls to his Chicago home to talk to his parents. But he's also been in a batting slump. So his father has laid down the law. "When you're hitting and playing the kind of ball you should," he's supposed to have told Dick, "you can 'phone home collect and your ma and I will foot the bill."

That's what we mean about Bell System people interested in increasing toll usage praying for Koko base hits.

• • •

**Operators Don't Say 'Nyune'** . . . Personality is creeping into the telephone lines—that is if the operators have anything to say. No longer does a "nine" come out of the earpiece "nyune" or a "five" "fife."

It's all part of a new approach to develop more naturalness in telephone operators. And it's part of a program that will end the old policy of trying to have all operators sound alike, giving canned little speeches and so forth. The naturalness hasn't slowed call competition time. Back in 1920 it took an average of 10 minutes and two sets of operators to complete a connection. Now the average is 1½ minutes and one operator.

• • •

**The Question Is Answered** . . . If any question remained in anyone's mind as to the need for the strictest possible economy in government, the grim march of recent events must have answered it.

This country is now committed to a policy of active resistance to communist aggression. It is a policy which has the full approval of the leaders of both political parties and of the nation at large. It is a policy whose cost no one can as yet estimate. At best, it seems inevitable that our expenditures for military and related purposes will rise materially.

In the light of this, how can further waste and unnecessary domestic spending be countenanced? In a world of struggle for survival, there is no room for the welfare state, for government pampering of the individual—or for the spending of our tax money for any purpose which can be accomplished by private enterprise.

Government has its hands full, and more, with desperately difficult tasks which only government can handle. At this time, of all times, it must keep to its proper constitutional duties.

# Compare the fast, easy *Nicopress* Line Splice with older methods . . . just do this

**1** CLEAN ENDS OF WIRE

**2** INSERT WIRE IN SLEEVE

**3** COMPRESS WITH THE EASY TO HANDLE *Nicopress* TOOL

*Ask Your Jobber*

**and you get this**

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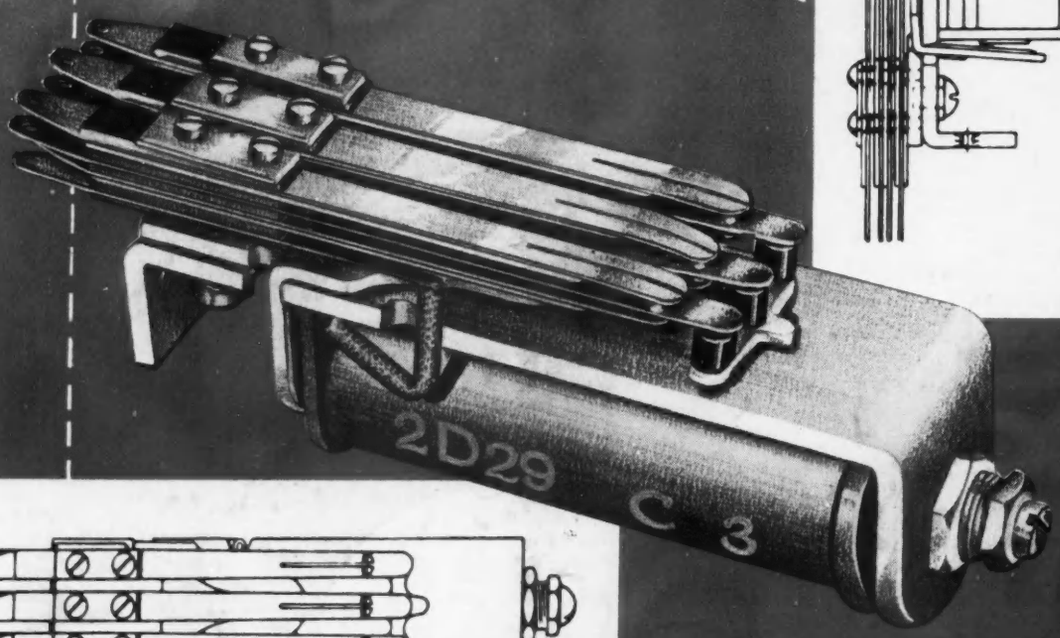


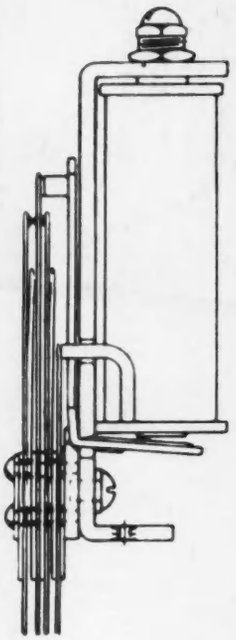

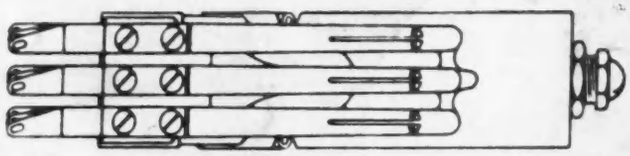

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Simple, sturdy, reliable, efficient—these qualities in this relay combine to make North "All-Relay" the finest, most economical dial automatic system you can buy.

Low maintenance and reliable service are what you want in a dial system. Check with your neighboring North user, you'll find that he is sold on "All-Relay" for those reasons.

Then buy North.

**THE NORTH ELECTRIC MANUFACTURING CO., Galion, Ohio, U. S. A.**

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